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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1886.

No. 494. 203

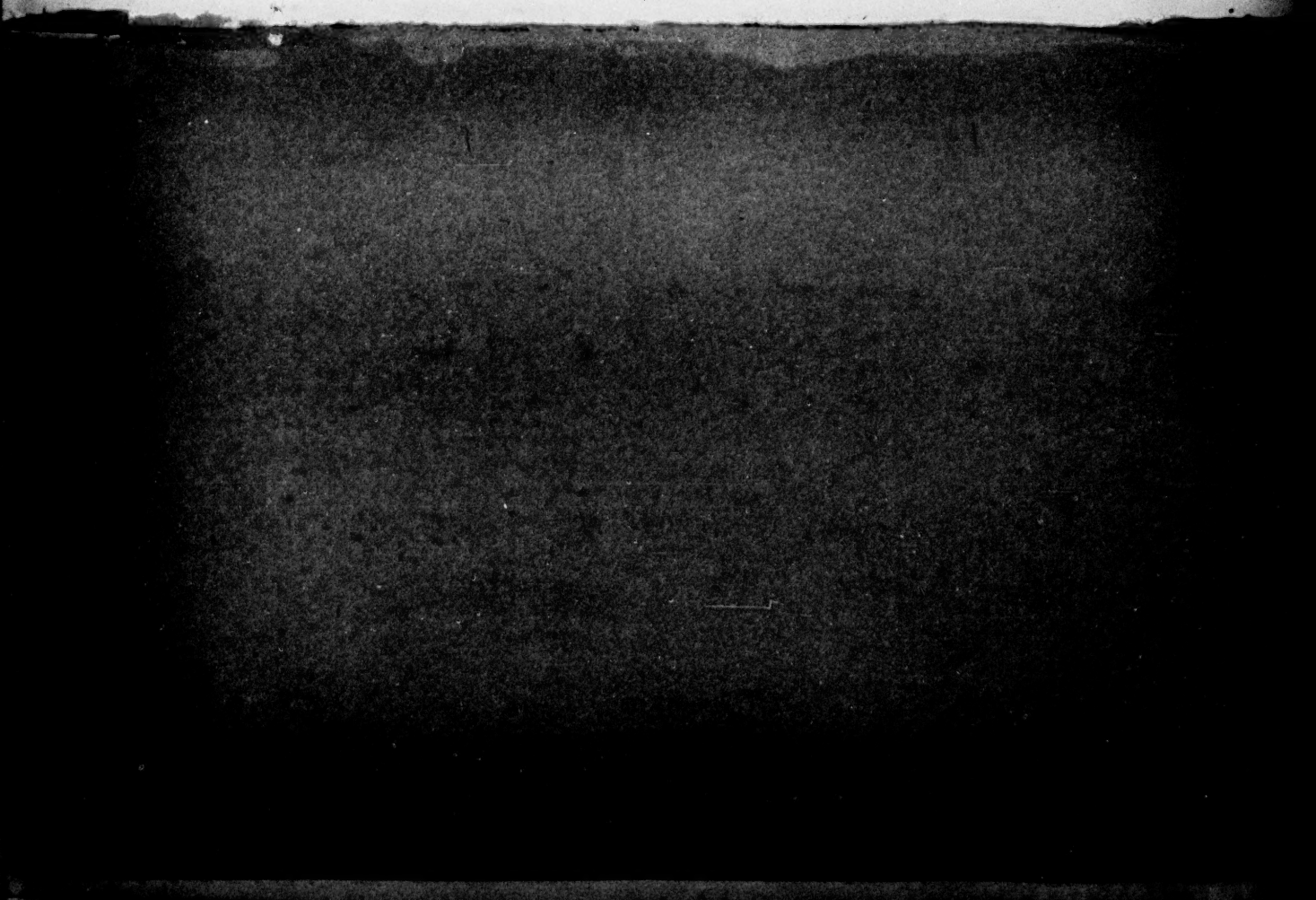
JAMES FLOWER, THOMAS FLOWER AND GEORGE FLOWER, APPELLANTS,

vs.

THE CITY OF DETROIT, THE FIRE COMMISSION OF THE CITY OF DETROIT, BENJAMIN VERNON, PRESIDENT THEREOF, AND THE BOARD OF WATER COMMISSIONERS OF THE CITY OF DETROIT.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF MICHIGAN.

FILED FEBRUARY 4, 1885.



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a *Clerk's Return to Claim of Appeal.*

The Circuit Court of the United States for the Eastern District of Michigan.

JAMES FLOWER, GEORGE FLOWER, and THOMAS FLOWER, Plaintiffs and Appellants,

vs.

THE CITY OF DETROIT, THE FIRE COMMISSION OF THE CITY OF Detroit, Benjamin Vernor, President, and the Board of Water Commissioners of the City of Detroit, Defendants and Appellees.

1 *Original Bill of Complaint.*

Circuit Court of the United States in and for the Eastern District of Michigan. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER

vs.

THE CITY OF DETROIT.

To the honorable the judges of the circuit court of the United States in and for the eastern district of Michigan:

James Flower, Thomas Flower, and George Flower, each a citizen of the State of Michigan, and all doing business as copartners in trade at the city of Detroit, in said State, under the firm name and style of James Flower and Brothers, bring this their bill of complaint against The City of Detroit, a municipal corporation organized and subsisting under and by virtue of the laws of said State.

And thereupon your orators complain and say that heretofore and on the 10th day of March, A. D. 1868, one Thomas R. Bailey, Jr., a citizen of the United States, who then was the original and first inventor of a new and useful invention, which consists of an improvement in the manufacture of fire plugs or hydrants, on application to the proper department of the Government of the United States for letters patent therefor, in accordance with the then existing acts of Congress in that behalf, had complied in all respects with the conditions and requirements of said acts, and with the rules and requirements of the Commissioner of Patents, so that letters patent were issued to him, the said Thomas R. Bailey, Jr., in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents, bearing date March 10, A. D. 1868, and numbered 75344, whereby there was granted and secured to the said Thomas R. Bailey, Junior, and to his heirs, administrators, and assigns, for the term of seventeen years from and after the date of said letters patent, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention and improvement set forth in said letters patent, as in and by said original letters patent, or a duly certified copy thereof ready in court to be produced, will more fully and at large appear.

And your orators further show unto your honors that by virtue

of an assignment in writing, for value received, the said Thomas R. Bailey, Junior, afterward sold, assigned, transferred, and set over all rights, franchises, and privileges acquired by him, as aforesaid, to your orators, so that your orators thereby became possessed of all right, title, and interest in and to said letters patent and in-
2 vention, which assignment was duly recorded in said Patent Office, as by the original, or a duly authenticated copy thereof, with the certificate of such recording thereto affixed, ready in court to be produced, will more fully and at large appear.

And your orators further show unto your honors that by the inadvertence, accident, or mistake on the part of the attorneys for the said Thomas R. Bailey, Junior, in making his application aforesaid the specification of said invention was defective, which defect was not discovered either by the said Thomas R. Bailey, Junior, or your orators until on or about the first day of February, A. D. 1876; whereupon, and immediately upon the discovery of said defect, your orators and the said Thomas R. Bailey, Junior, pursuant to the act of Congress in such case made and provided, surrendered the said letters patent; and thereupon the same, with the specification amended so as to cure the said defect, —, whereby the said Commissioner of Patents reissued, in due form of law, to the said Thomas R. Bailey, Junior, his heirs, administrators, and assigns, sealed with the seal of the Patent Office, signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents, which said reissued letters patents bear date March 14, A. D. 1876, and are numbered 6990, whereby there was granted to the said Thomas R. Bailey, Junior, his heirs, administrators, and assigns, for the unexpired part of the term of seventeen years from the said tenth day of March, A. D., 1868, the date of the original patent aforesaid, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention and improvement therein described and claimed, as in and by said reissued letters patent, or a duly certified copy thereof ready in court to be produced, will more fully and at large appear.

And your orators further show unto your honors, as they are informed and believe, and on their information and belief allege it to be true, that the defendant, The City of Detroit, has since the said 10th day of March, A. D. 1868, and at divers times and occasions between that time and the time of filing this your orators' bill of complaint, well knowing the facts hereinbefore set forth, infringed and are now infringing said letters patent in said city of Detroit, in the eastern district of Michigan, by using fire plugs and hydrants in the principal streets of said city made according to said invention and improvement of the said Thomas R. Bailey, Junior, by parties to your orators unknown, at the special instance and request of said defendant, and without any legal assignment or license therefor, and in defiance of your orators' exclusive rights in the premises aforesaid, whereby great injury and damage have resulted to your orators in the loss of the profits rightfully belonging to your orators, under and by virtue of said letters patent, in the manufacture and sale of said fire plugs or hydrants.

And your orators further show that by reason of the said infringement they have sustained damages in the sum of fifty thousand dollars, $50,000.

To the end, therefore, that the defendant may, if it can, show why your orators should not have the relief herein prayed, and
3 may true and perfect answer make, though not under oath, the necessity of answer under oath being hereby expressly waived, to all and singular the premises, and that it may be decreed to account for and pay over unto your orators all gains and profits which might have been realized by your orators had the said defendants purchased the said fire plugs or hydrants of and from your orators, and all damages otherwise sustained by your orators by reason of said infrigement, and that the said defendant may be restrained, not only during the pendency of this suit, but also perpetually, by an injuction or injunctions to be issued out of this honorable court, from using in any manner said invention or improvement or any part thereof in violation of the rights of your orators as aforesaid, and also that your honors, upon rendering a decree for an infringement, as above asked, may proceed to assess or cause to be assessed, under your direction, in addition to the gains and profits to be accounted for by the defendant as aforesaid, the damages which your orators have sustained by reason of such infringement—

And your orators pray also that your orators may have such other and further relief in the premises as may be according to equity and good conscience—may it please your honors to grant unto your orators a writ of injunction conformable to the prayer of this bill until the further order of this court, and as well the writ of subpœna, directed to said City of Detroit, and commanding the said City of Detroit, at a certain time and under a certain penalty, to appear before your honors in this court, then and there to answer unto this bill of complaint, and to abide by and perform such decree as the court shall in the premises make.

And your orators will ever pray, &c.

JAMES FLOWER.
THOMAS FLOWER.
GEORGE FLOWER.

E. J. HILL AND SONS,
Solicitors for Complainants.
EDWARD J. HILL,
Of Counsel.

4 UNITED STATES OF AMERICA,
Eastern District of Michigan:

James Flower, Thomas Flower, and George Flower, each being duly sworn, on oath says that he has heard the foregoing bill read and knows the contents thereof, and that he is one of the plaintiffs named in said bill of complaint, and has signed the same above, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those

matters he believes the same to be true, and that he does verily believe that the said Thomas R. Bailey, Junior, was the original and first inventor of the new and useful invention and improvement in the manufacture of fire plugs or hydrants described in said letters patent mentioned in the foregoing bill.

JAMES FLOWER.
THOMAS FLOWER.
GEORGE FLOWER.

Subscribed and sworn to before me this 3rd day of October, A. D. 1883.

WALTER S. HARSHA,
Clerk U. S. Circuit Court, Eastern District of Michigan.

Endorsed: 2872. In the circuit court of the United States for the eastern district of Michigan. James Flower, Thomas Flower, [and] George Flower *vs.* The City of Detroit. Original bill. Edward J. Hill, of counsel. Filed Oct. 3rd, 1883. Walter S. Harsha, clerk.

5 *Præcipe for Subpœna.*

UNITED STATES OF AMERICA, *Eastern District of Michigan,* } *ss:*

In the Circuit Court.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT.

To the clerk of said court:

On the bill of complaint filed herewith please issue subpœna directed to the defendant, The City of Detroit, returnable to the next term of said court.

On the filing of the answer or demurrer to said bill by the defendant, please send us a certified copy thereof by mail.

Yours truly,
E. J. HILL & SONS,
87 *Metropolitan Block, Chicago, Ill.*

Endorsed: 2872. Circuit court of U. S., eastern district of Mich. James Flower *et al. vs.* The City of Detroit. *Præcipe.* Filed Oct. 3rd, 1883. Walter S. Harsha, clerk.

6 *Subpœna on Original Bill, with Return of Service.*

Circuit Court of the United States of America for the Sixth Circuit and Eastern District of Michigan, sitting in Chancery.

The President of the United States of America to The City of Detroit, a municipal corporation organized and existing under and by virtue of the laws of the State of Michigan, who is a citizen of the State and resident of the eastern district of Michigan:

You are hereby commanded to be and appear in the circuit court

of the United States of America for the sixth circuit and eastern district of Michigan, sitting in chancery, before the judges thereof, at the district court-room, in the city of Detroit, on the first Monday of November next ensuing, then and there to answer unto a bill of complaint exhibited against you as defendant by James Flower, Thomas Flower, and George Flower, who are citizens of the city of Detroit, in the State of Michigan, and residents of the eastern district of said State, as complainants, and this you shall in no wise omit, under the penalty of one thousand dollars.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States, this third day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[SUBPŒNA SEAL.] WALTER S. HARSHA, *Clerk.*

MEMORANDUM.—The above-named defendant is required to enter its appearance in this suit with the clerk of this court, at his office in the city of Detroit, on or before the day on which this writ of subpœna is returnable; otherwise the bill of complaint in this cause will be taken *pro confesso* against said defendant.

WALTER S. HARSHA, *Clerk.*

7 EASTERN DISTRICT OF MICHIGAN, *ss:*

I hereby certify and return that on the third day of October, A. D. 1883, I served the within writ on The City of Detroit, defendant within named, at Detroit, in said district, by delivering to Alexander A. Saenger, clerk of said city of Detroit, personally, a true copy thereof; also exibiting this writ, with the seal of the court impressed thereon, said copy having like memorandum appended thereto as is hereto appended.

S. S. MATTHEWS, *U. S. Marshal,*
By GEO. D. MUSSEY, *Deputy.*

EASTERN DISTRICT OF MICHIGAN:

I hereby certify and return that on the 5th day of Oct., A. D. 1883, I served the within writ on The City of Detroit, defendant within named, at Detroit, in said district, by delivering to Wm. G. Thompson, mayor of said city, personally, a true copy thereof; also exhibiting this writ, with the seal of the court impressed thereon, said copy having like memorandum appended thereto as is hereto appended.

S. S. MATTHEWS,
U. S. Marshal.

Fees:	
Service	4 00
Copy	1 00
4 miles travel	24
	$5 24

Endorsed: No. 2872. Circuit court of the United States for the sixth circuit and eastern district of Michigan. In chancery. James Flower *et al. vs.* City of Detroit. Subpœna. Filed Oct. 8, 1883. Walter S. Harsha, clerk.

8 *Præcipe for Entry of Defendant's Appearance.*

In the Circuit Court of the United States for the Eastern District of Michigan. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER

vs.

THE CITY OF DETROIT.

Please to enter the appearance of the above-named defendant, The City of Detroit, by me, as its solicitor.

HENRY M. DUFFIELD,
Solicitor for Defendant.

To the clerk of said court.

Endorsed: 2872. Circuit court of the United States for the eastern district of Michigan. In equity. James Flower *et al. vs.* City of Detroit. *Præcipe* for appearance. Filed October 18th, 1883. Jno. Graves, dep. clerk.

9 *Appearance of Defendant.*

In the Circuit Court of the United States for the Eastern District of Michigan. Oct. 18th, 1883. In Equity.

In the case of—

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER

vs.

THE CITY OF DETROIT.

On reading and filing *præcipe*, and on motion of Henry M. Duffield, solicitor for defendant, it is ordered that the appearance of the said defendant be, and the same is hereby, entered in this cause; and, on like motion, it is further ordered that the complainants in this cause be, and they are hereby, required to deliver to said defendant or to his said solicitor a copy of the bill of complaint on file in this cause within 20 days after service upon them of notice of this rule.

WALTER S. HARSHA, *Clerk*,
By JNO. GRAVES, *Dep'y*.

10 *Notice of Retainer and Receipt for Copy of Bill.*

In the Circuit Court of the United States for the Eastern District of Michigan. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT.

To E. J. Hill & Sons, complainants' solicitors.

SIRS: Please to take notice that I have been retained as solicitor for the above-named defendant, The City of Detroit.

You are hereby requested to furnish me with a copy of the complainants' bill of complaint in this cause.

Yours, &c., HENRY M. DUFFIELD,
Solicitor for Defendant.

DETROIT, *Oct.* 19, 1883.

Received of E. J. Hill & Sons this day a copy of the bill of complaint, pursuant to the above demand.

HENRY M. DUFFIELD,
Sol'r for Defendant, City of Detroit,
Per S. F. MOORE.

Endorsed: 2878. Circuit court of the United States for the eastern district of Michigan. In Equity. James Flower *et al. vs.* City of Detroit. Notice of retainer & demand for copy of bill of complaint. Acceptance of service of copy of bill. Filed in clerk's office Oct. 19, 1883. Walter S. Harsha, clerk.

11 *Demurrer to Original Bill.*

In the Circuit Court of the United States for the Eastern District of Michigan. In Equity.

The demurrer of The City of Detroit, defendant, to the bill of complaint of James Flower, Thomas Flower, and George Flower, complainants.

This defendant, by protestation, not confessing or acknowledging all or any of the matters and things in the said bill of complaint to be true in such manner and form as the same are therein set forth and alleged, demurs to said bill, and for cause of demurrer shows that it appears by said complainants' bill that "The Board of Water Commissioners of the City of Detroit," a corporation created, established, and existing by virtue of an act of the Legislature of the State of Michigan, entitled "An act to amend the laws relative to supplying the city of Detroit with pure and wholesome water," approved February 14th, 1853, and the acts amendatory thereof, is a necessary party to said bill, inasmuch as said "The Board of Water Commissioners of the City of Detroit" have the sole and exclusive title to and control over the providing and erecting of fire-hydrants in the city of Detroit, and the defendant, The City of Detroit, has no right in respect thereto, except to designate and order the localities

where the same shall be provided and erected, but the said complainants have not made the said "The Board of Water Commissioners of the City of Detroit" a party to their said bill.

Wherefore this defendant demands the judgment of this honorable court whether it shall be compelled to make any further or other answer to the said bill or any of the matters and things therein contained, and prays to be hence dismissed with its reasonable costs in this behalf sustained.

HENRY M. DUFFIELD,
Solicitor & of Counsel for Defendant.

I hereby certify that, in my opinion, the foregoing demurrer of The City of Detroit, defendant, to the bill of complaint of James Flower, Thomas Flower, and George Flower, complainants, is well founded in law and proper to be filed in the above cause.

HENRY M. DUFFIELD,
Of Counsel for Defendant.

12 STATE OF MICHIGAN, } ss:
Eastern District of Michigan, County of Wayne, }

Henry M. Duffield, being duly sworn, says he is the city counselor of the city of Detroit and authorized by resolution of the common council of said city to defend its interests in the above-entitled cause; that he has prepared and signed the foregoing demurrer to the bill of complaint in said cause, and that said demurrer is not interposed for delay.

HENRY M. DUFFIELD.

Sworn to and subscribed before me this 24th day of November, A. D. 1883.

SANDS F. MOORE,
Notary Public, Wayne County, Mich.

Endorsed: 2872. U. S. circuit court, E. district of Michigan. In equity. James Flower *et al. vs.* The City of Detroit. Demurrer. Filed in clerk's office Nov. 24, 1883. Walter S. Harsha, clerk.

13 *Amended Bill of Complaint. Filed November* 30, 1883.

In the Circuit Court of the United States for the Eastern District of Michigan. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, FIRE COMMISSION OF THE CITY of Detroit, Benjamin Vernor, President thereof, and The Board of Water Commissioners of the City of Detroit. } No. 2872.

To the honorable the judges of the circuit court of the United States in and for the eastern district of Michigan:

James Flower, Thomas Flower, and George Flower, each a citizen of the State of Michigan, and all doing business as copartners in

trade at the city of Detroit, in said State, under the firm name and style of James Flower & Brothers, bring this their bill of
14 complaint against The City of Detroit, a municipal corporation created by and organized and subsisting under and by virtue of an act of the Legislature of the State of Michigan, entitled "An act to revise the charter of the city of Detroit," approved February 5, A. D. 1857, and the several acts of the Legislature amendatory thereof, and thereby duly empowered, among other things, by the name of "The City of Detroit," to sue and be sued; to take, hold, purchase, lease, convey, and dispose of any real, personal, or mixed estate for the use of said corporation, and also against the "Fire Commission of the City of Detroit," a board of officers of and auxiliary corporation to said city of Detroit, created by and organized and subsisting under and by virtue of another act of said Legislature, entitled "An act to create a fire commission in the city of Detroit," approved March 18, A. D. 1871, and the other acts amendatory thereof, to wit, the acts approved respectively May 23, A. D. 1877, and March 15, A. D. 1882, and thereby duly empowered, among other things, to provide fire telegraphs, to select suitable locations for engine-houses, reservoirs, and fire-hydrants, and to buy and sell the same at discretion in and for said city, subject, however, to the approval of the common council of said city, and against Benjamin Vernor, president of said fire commission.

And also against "The Board of Water Commissioners of the City of Detroit," another board of officers of and auxiliary corporation to said city of Detroit, created by and organized and subsisting under and by virtue of another act of the said Legislature, entitled "An act to amend the laws relative to supplying the city of Detroit with pure and wholesome water, and to provide for the completion and management of the Detroit water-works," approved Feb-
15 ruary 14, A. D. 1853, and the several acts amendatory thereof, as well as under and by virtue of the said act entitled "An act to revise the charter of the city of Detroit," and the said several acts amendatory thereof, whereby the said corporation, "The Board of Water Commissioners of the City of Detroit," was and is, among other things, duly empowered to provide and erect fire-hydrants at such localities in said city as may be deemed necessary, and ordered by the said fire commission, and also by the common council of said city of Detroit.

And thereupon your orators complain and say that heretofore, and on the 10th day of March, A. D. 1868, one Thomas R. Bailey, Jr., a citizen of the United States, who then was the original and first inventor of a new and useful invention, which consists in an improvement in the manufacture of fire plugs or hydrants, on application to the proper department of the Government of the United States for letters patent therefor, in accordance with the then existing acts of Congress in that behalf, had complied in all respects with the conditions and requirements of said acts, and with the rules and requirements of the Commissioner of Patents, so that letters patent were issued to him, the said Thomas R. Bailey, Jr., in due form of law, under the seal of the Patent Office of the United States, signed

by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date March 10, A. D. 1868, and numbered 75344, whereby there was granted and secured to the said Thomas R. Bailey, Jr., and to his heirs, administrators, and assigns, for the term of seventeen years from and after the date of said letters patent, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention and improve-
16 ment set forth in said letters patent, as in and by said original letters patent, or a duly certified copy thereof ready in court to be produced, will more fully and at large appear.

And your orators further show that on or about the 1st day of February, A. D. 1876, your orators then being about to acquire an interest in said invention under said letters patent only by the aid of skillful solicitors learned in the law, and after careful examination of the letters patent and the papers and model on file and deposit in said patent office with the said application of the said Thomas R. Bailey, Jr., therefor, first learned that said letters patent were inoperative and invalid by reason of a defective and insufficient specification, and that the defect and insufficiency therein arose from a discrepancy or difference between the drawing forming a part of said specification and the model aforesaid; that one of the distinguished features of said invention consists in a loose case around the tube or upright part of the hydrant, connecting the same with the water-main or horizontal part thereof, fitting the same like a sleeve, resting when in proper position with its lower end upon the water-main or flange thereof below, so as to slip up on the said tube, which feature is fully shown and properly exhibited in and by the said model, but which feature was not shown in said drawing for the reason that said drawing was made by the attorneys of said Thomas R. Bailey, Jr., from said model with the said case accidentally out of its proper position, so that in the said drawing the said case is represented as not only resting on the water-main or flange thereof below, but as coming up flush with the flange above it on the tube of the hydrant, and that while the model shows the said case as loose because of its having an end play
17 up and down on and forming a part of the hydrant connecting the tube and water-main together, as aforesaid, yet the said drawing showed the said case, though forming a part of the hydrant, connecting the tube and water-main together, as being confined at the top as well as at the bottom, so as not to be a loose case and as not to have such end play, and that your orators, on thus learning of the said facts, at once informed the said Thomas R. Bailey, Jr., thereof, who then and thereby first discovered the said defect in and insufficiency of said specification, as your orators are informed and verily believe, and so state the fact to be.

And your orators further show unto your honors, on information and belief, that by reason of the inadvertence, accident, and mistake on the part of the attorneys for the said Thomas R. Bailey, Jr., as aforesaid, and without any fraudulent or deceptive intention in making his application aforesaid, the said letters patent were inop-

erative by reason of such defective and insufficient specification; whereupon, and immediately upon the discovery of said defect, the said Thomas R. Bailey, Jr., pursuant to the act of Congress in such cases made and provided, surrendered the said letters patent; and thereupon the same, with the specifications amended so as to cure the said defect, were, by said Commissioner of Patents, reissued in due form of law to the said Thomas R. Bailey, Jr., his heirs, administrators, and assigns, sealed with the seal of the Patent Office, signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents, which said reissued letters patent bear date March 14, A. D. 1876, and are numbered 6990, whereby there was granted to the said Thomas R. Bailey, Jr., his heirs, administrators, and assigns, for the unexpired part of the term of seventeen years from the said 10th day of March, A. D. 1868, the date of the
18 original patent aforesaid, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention and improvement therein described and claimed, as in and by said reissued letters patent, or a duly certified copy thereof ready in court to be produced, will more fully and at large appear.

And your orators further show unto your honors that by virtue of an assignment, in writing, for value received, the said Thomas R. Bailey, Jr., afterwards sold, assigned, transferred, and set over all rights, franchises, or privileges acquired by him as aforesaid to your orators, so that your orators thereby became possessed of all right, title, and interest in and to said letters patent and invention, which assignment was duly recorded in said Patent Office, as by the original, or a duly authenticated copy thereof, with the certificate of such recording thereto affixed, ready in court to be produced, will more fully and at large appear.

And your orators further show unto your honors, as they are informed and believe, and on their information and belief allege it to be true, that defendant, The City of Detroit, as well as each of the other defendants aforesaid, for itself and for said city, has, since the said 14th day of March, A. D., 1876, and at divers times and occasions between that time and the time of filing this your orators' bill of complaint, well knowing the facts herein set forth, infringed and are now infringing said letters patent in said city of Detroit, in the eastern district of Michigan, by using fire plugs and hydrants in the principal streets of said city made according to said invention and improvement of the said Thomas R. Bailey, Jr., by parties to your orators unknown, at the special instance and request of
19 said defendants, and without any legal assignment or license therefor, and in defiance of your orators' exclusive rights in the premises aforesaid, whereby great injury and damage have resulted to your orators in the loss of the profits rightfully belonging to your orators, under and by virtue of said letters patent, in the manufacture and sale of said fire plugs or hydrants.

And your orators further show, on information and belief, that since the date of said reissued letters patent and from said date up to the time of filing their original bill herein and within the term

covered by said letters patent in the eastern district of Michigan, the defendant, The Board of Water Commissioners of the City of Detroit, under the orders of the common council of said city, as well as under the orders of the defendant, The Fire Commission of the City of Detroit, approved by said common council, but without leave or license from your orators, have from time to time provided and erected, and are now maintaining and using, fire-hydrants upon the principal streets of said city of Detroit and elsewhere in said district for the use of said city in defiance of your orators' exclusive rights aforesaid, whereby great gains and profits have accrued to the said defendant, The City of Detroit, arising mainly from the economical and better construction and the greater durability, efficacy, and permanency appertaining to fire-hydrants made according to said invention, as compared with the structures of a similar kind in use prior to said invention, and that the amount of such gains and profits are to your orators unknown.

And your orators further show that by reason of the said infringement they have sustained damages in the sum of fifty thousand dollars ($50,000).

20 And your orators further show that they fear and have reason to fear that unless they, the said defendants, and each of them, *is* restrained by a writ of injunction issuing out of this court they will continue to provide and erect and to maintain and use fire-dydrants made according to said letters patent without leave or license from your orators, and thereby will cause irreparable injury to your orators' exclusive rights aforesaid.

To the end, therefore, that the defendants, respectively, may, if they can, show why your orators should not have the relief therein prayed, and may true and perfect answer make—though not under oath, the necessity of answer under oath being hereby expressly waived—to all and singular the premises, and that they may be decreed to account for and pay over to your orators all gains and profits which might have been realized by your orators had the said defendants purchased the said fire plugs or hydrants of and from your orators, as well as all gains and profits realized by said defendants by the making and using of said invention as aforesaid and all damages otherwise sustained by your orators by reason of said infringement, and that the said defendants, severally, may be restrained, not only during the pendency of this suit, but also perpetually, by an injunction or injunctions to be issued out of this honorable court, from making or using in any manner said invention or improvement, or any part thereof, in violation of the rights of your orators as aforesaid, and also that your honors, upon rendering a decree for an infringement, as above asked, may proceed to assess or cause to be assessed under your direction, in addition to the gains and profits to be accounted for by the defendants as aforesaid, the damages which your orators have sustained by reason of such infrinement—

21 And your orators pray, also, that your orators may have such other and further relief in the premises as may be according to equity and good conscience, together with their costs—

may it please your honors to grant unto your orators a writ of injunction, conformable to the prayer of this bill, until the further order of this court, and, as well, another writ of subpœna, impleading and directed to The Fire Commission of the City of Detroit and to the president thereof and to The Board of Water Commissioners of the City of Detroit, and commanding each of them, at a certain time and under a certain penalty, to appear before your honors in this court, then and there to answer unto this bill of complaint and to abide by and perform such decree as the court shall in the premises make.

And your orators will ever pray, etc.

JAMES FLOWER.
THOMAS FLOWER.
GEORGE FLOWER.

E. J. HILL & SON,
Solicitors for Complainants.
EDWIN J. HILL,
Of Counsel.

UNITED STATES OF AMERICA, *Eastern District of Michigan:*

James Flower, Thomas Flower, and George Flower, each being duly sworn, on oath says that he has heard the foregoing bill read, and knows the contents thereof, and that he is one of the plaintiffs named in said bill of complaint and has signed the same
22 above, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he believes the same to be true, and that he does verily believe that the said Thomas R. Bailey, Jr., was the original and first inventor of the new and useful invention and improvement in the manufacture of fire plugs or hydrants described in said letters patent mentioned in the foregoing bill.

JAMES FLOWER.
THOMAS FLOWER.
GEORGE FLOWER.

Subscribed and sworn to before me this 30th day of November, A. D. 1883.

WALTER S. HARSHA,
Clerk U. S. Circuit Court, Eastern District of Michigan.

23 *Subpœna on Amended Bill, with Proof of Service.*

Circuit Court of the United States of America for the Sixth Circuit and Eastern District of Michigan, Sitting in Chancery.

The President of the United States of America to The City of Detroit, Fire Commission of the City of Detroit, Benjamin Vernor, president of said fire commission, and The Board of Water Commissioners of the City of Detroit, who are citizens of the State and residents of the eastern district of Michigan:

You are hereby commanded to be and appear in the circuit court of the United States of America for the sixth circuit and eastern

district of Michigan, sitting in chancery, before the judges thereof, at the district court-room, in the city of Detroit, on the first Monday of January next ensuing, then and there to answer unto an an amended bill of complaint exhibited against you as defendant by James Flower, Thomas Flower, and George Flower, who are citizens of the State and eastern district of Michigan, as complainants, and this you shall in nowise omit, under the penalty of one thousand dollars.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States, this 30th day of November, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[SUBPŒNA SEAL.] WALTER S. HARSHA, *Clerk.*

MEMORANDUM.—The above-named defendants are required to enter their appearance in this suit with the clerk of this court, at his office in the city of Detroit, on or before the day on which this writ of subpœna is returnable; otherwise the bill of complaint in this cause will be taken *pro confesso* against said defendants.

WALTER S. HARSHA, *Clerk.*

24 EASTERN DISTRICT OF MICHIGAN, *ss:*

I hereby certify and return that on the 1st day of December, A. D. 1883, I served the within writ on Benjamin Vernor, president of said fire commissioners, one of the defendants within named, at Detroit, in said district, by delivering to him personally a true copy thereof; also exhibiting this writ, with the seal of the court impressed thereon; and on The Fire Commissioners of the City of Detroit, at Detroit, in said district, by delivering to James E. Tryon, secretary of said fire commissioners, personally, a true copy thereof; and on The Board of Water Commissioners of the City of Detroit, at Detroit, in said district, by delivering to Chauncey Hurlbut, president of said board of water commissioners, and Henry Starkey, secretary of said board of water commissioners, personally, each a true copy thereof, said copies having like memorandum appended thereto as is hereto appended.

S. S. MATTHEWS,
U. S. Marshal,
By A. S. MATTHEWS, *Deputy.*

EASTERN DISTRICT OF MICHIGAN, *ss:*

I hereby certify and return that on the 1st day of December, A. D. 1883, I served the within writ on The Fire Commissioners of the City of Detroit, one of the defendants within named, of Detroit, in said district, by delivering to Benjamin Vernor, president of said fire commissioners, personally, a true copy thereof, and exhibited to him this writ, with the seal of the court impressed thereon, said

copy having like memorandum appended thereto as is hereto appended.

S. S. MATTHEWS, *Marshal*,
By A. S. MATTHEWS, *Deputy*.

Fees:	
5 service	10 00
5 copies	2 50
2 miles' travel	12
	$12 62

Endorsed: 2872. Circuit court of the United States for the sixth circuit and eastern district of Michigan. In chancery. James Flower *et al. vs.* The City of Detroit *et al.* Subpœna on amended bill of complaint. Filed in clerk's office Dec. 1, 1883. Walter S. Harsha, clerk.

25 *Stipulation to Amend Bill.*

United States Circuit Court, Eastern District of Michigan. In Equity.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT. } No. 2872.

It is hereby stipulated by and between the parties to the above-entitled cause that the complainants may forthwith amend their bill of complaint herein on payment of costs—$10.00.

Dated Nov. 30, 1883.

HENRY M. DUFFIELD,
Sol'r for Def't.

Endorsed: United States circuit court, E. district of Michigan. Flower *et al. vs.* The City of Detroit. Stipulation. Ed. J. Hill, for compl't. Filed in clerk's office Dec. 3, 1883. Walter S. Harsha, clerk.

26 *Order Allowing Bill to be Amended.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room in the city of Detroit, on Monday, the third day of December, in the year one thousand eight hundred and eighty-three.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, GEORGE FLOWER, and THOMAS FLOWER
vs.
THE CITY OF DETROIT. } In Equity.

On motion of Edward J. Hill, solicitor for complainants, in view of the demurrer of The City of Detroit on file herein, it is hereby ordered that the complainants may amend their bill of complaint

herein forthwith on payment of $10.00 costs, and that the defendant, The City of Detroit, have until the rule day in January to plead, answer, or demur to said amended bill of complaint.

27 *Order Extending Time to Plead, Answer, or Demur.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room in the city of Detroit, on Monday, the seventh day of January, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause, on motion of Henry M. Duffield, of counsel for defendants, it is ordered that the time to plead, answer, or demur be, and the same is hereby, extended to the next rule day—Feb'y 4.

28 *Answer of The City of Detroit, Fire Commission of the City of Detroit, and The Board of Water Commissioners of the City of Detroit. Filed February* 4, 1884.

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al.*
vs.
CITY OF DETROIT *et al.* } No. 2872.

The joint and several answer of The City of Detroit and of The Fire Commission of the City of Detroit and of The Board of Water Commissioners of the City of Detroit to the bill of complaint of James Flower, Thomas Flower, and George Flower.

29 These defendants, reserving to themselves all right of exception to any and all matters contained in the said bill of complaint, make answer thereto, or to so much thereof as they are advised is material to be answered, as follows:

1. These defendants are informed and believe that letters patent, bearing date March 10, 1868, numbered 75344, and purporting to grant unto one T. R. Bailey, Jr., his executors, administrators, or assigns, for the term of seventeen years from the said date thereof, the full and exclusive right and liberty of making, using, and vending to others to be used, a certain alleged invention therein entitled improvement in hydrants, were issued from the Patent Office of the United States; but these defendants deny that the said T. R. Bailey, Jr., was the original and first inventor of any new and useful improvement in the manufacture of fire plugs or hydrants, as alleged in the said bill of complaint, or of any invention or improvement described and set forth in the said letters patent.

2. These defendants are informed and believe that the said letters

patent No. 75344 were afterwards surrendered, and that new letters patent, bearing date March 14, 1876, numbered 6990 of reissues, and purporting to contain an amended specification, and to grant unto Thomas R. Bailey, Jr., his heirs and assigns, for term of seventeen years from March 10, 1868, the exclusive right to make, use, and vend an alleged invention therein, entitled "improvement in hydrants," were also issued from the Patent Office of the United States; but these defendants deny that by virtue of the said reissue No. 6990 the said Thomas R. Bailey, Jr., or his assigns, became possessed of or entitled to any exclusive rights and privileges in respect
30 to the things therein described and claimed; and deny that the said reissued letters patent No. 6990 were obtained pursuant to any act of Congress, or in accordance with any statutory provision whatsoever.

3. These defendants further deny that the said original letters patent No. 75344 were inoperative or invalid by reason of such a defective or insufficient specification as was or could be lawfully corrected or amended by the said surrender and reissue; deny that there was any such discrepancy or difference between the drawing forming part of the specification of the said original letters patent and the model deposited in the Patent Office with the application of the said T. R. Bailey, Jr., for the said original letters patent, as did or could constitute a defect or insufficiency of specification within the meaning of the provisions of the statutes of the United States relating to correction of errors by surrender and reissue of an inoperative or invalid patent; deny that one of the distinguishing features of the alleged invention for which said original letters patent were procured and granted consists in a loose case around the tube or upright part of the hydrant connecting the same with the water-main or horizontal part thereof, fitting the same like a sleeve, and resting, when in a proper position, with its lower end upon the water-main or flange thereof below, so as to slip up on the said tube, as alleged in the said bill of complaint; deny that the said feature was fully shown and properly exhibited in and by the said model; deny that the said feature was omitted from the drawing of the said original letters patent accidentally; deny that the drawing of the said original letters patent shows the said case out of position, and deny that the drawing of the said original letters patent was, in respect to any feature thereof whatsoever, made through inadvertence, accident,
31 or mistake; but aver, on the contrary, that the said drawing of the said original letters patent was made in strict accordance with the alleged invention which the said T. R. Bailey, Jr., intended to secure in and by said original letters patent, and which he described and intended to describe in the specification thereof; aver that, in so far as there may have been any specific difference or variation between the actual construction of the model deposited in the Patent Office with the application of the said T. R. Bailey, Jr., for the said original letters patent and the delineations contained in the drawings thereof, such difference or variation was wholly immaterial and unrelated to the subject-matter for which the said original letters patent were applied for and procured; and aver that a loose case sur-

rounding the upright tube of a hydrant, and capable of end play up and down thereon, was never embraced in the invention intended to be represented by the said model, and intended to be described and shown in the specification and drawings of the said original letters patent.

4. These defendants are ignorant and have not been informed, save by the bill of complaint, whether by an instrument in writing, for value received, the said Thomas R. Bailey, Jr., afterwards sold, assigned, transferred, and set over all rights, franchises, and privileges acquired by him as aforesaid to the complainants, or whether such assignment was duly recorded in the Patent Office, and therefore leave the complainants to prove the same; but these defendants deny that by virtue of any such assignment the complainants became possessed of or entitled to any exclusive right, title, or interest in and to the alleged invention set forth in the said letters patent reissue No. 6990, or any material and substantial part thereof.

32 5. These defendants deny that defendant, The City of Detroit, or either of the other defendants, for itself or for the said city, has, since the 14th day of March, 1876, or at divers times and occasions between that date and the date of filing the complainants' said bill, infringed or is now infringing upon the said letters patent reissue No. 6990 in the city of Detroit, within the said eastern district of Michigan; deny that defendant, The City of Detroit, or either of the other defendants, for itself or for the said city, has at any time used or is using, in the principal streets of the said city, fire plugs and hydrants made according to the said alleged invention and improvement of the said Thomas R. Bailey, Jr.; deny that any such fire plugs or hydrants had been made at the special instance or request of the defendants, or either of them; deny that the defendants, or either or any of them, have manufactured or sold, or caused to be manufactured or sold, any such fire plugs or hydrants; and deny that the defendants, or either or any of them, have in any manner, at any time or place, defied or violated any exclusive rights of the complainants, if such there be in the premises, or caused any injury or damage to the complainants, or any loss of profits, if there be such, rightfully belonging to the complainants under and by virtue of the said letters patent.

6. These defendants further deny that since the date of said reissued letters patent, and from said date up the time of filing the complainants' original bill herein, and within the term covered by said letters patent, in the eastern district of Michigan, the defendant, The Board of Water Commissioners of the City of Detroit, under the orders of the common council of said city, or under the

33 orders of the defendant, The Fire Commission of the City of Detroit, approved by said common council, has from time to time provided and erected, or is now maintaining or using, upon the principal streets of said city of Detroit or elsewhere in said district, for the use of said city, any fire-hydrants made according to the alleged invention of the said Thomas R. Bailey, Jr., described and set forth in the letters patent aforesaid, reissue No. 6990, or in

defiance of any exclusive rights of the complainants, if such there be, under and by virtue of said reissued letters patent; deny that great gains and profits or any gains and profits whatsoever have accrued to the said defendant, The City of Detroit, or have arisen in any manner from anything appertaining to the said alleged invention described and set forth in the said reissued letters patent; deny that any of the fire plugs or hydrants which have heretofore been or now are maintained and used upon the streets of the city of Detroit or elsewhere in said district by or on behalf of said city have embraced or embodied the said alleged invention, or any material or substantial part thereof, described and set forth in the said reissued letters patent, and deny that any economical or better construction or greater durability, efficiency, or permanency appertain to fire-hydrants made according to the said alleged invention, as compared with structures of a similar kind in use prior to the assumed or pretended origination of the said alleged invention by Thomas R. Bailey, Jr.

7. These defendants further deny that the complainants have, by reason of any act or acts of the defendants, or either or any of them, sustained damages in the sum of fifty thousand dollars, or any loss, damage, or injury whatsoever.

34 8. These defendants further deny that the complainants have any cause or reason to fear that the defendants, or either or any of them, will provide, erect, maintain, or use fire-hydrants made according to the said letters patent, or intend so to do, or will cause irreparable injury or any injury whatsoever to the complainants' exclusive rights, if any such there be, as alleged in the said bill of complaint.

9. The defendants aver that the original letters patent aforesaid, No. 75344, were surrendered, not to correct any error which had arisen by inadvertence, accident, or mistake, but to claim inventions never made or originated by the said Thomas R. Bailey, Jr.; aver that new matter not constituting any substantial part of the alleged invention upon which the said original letters patent were granted was introduced into the specification of the said new letters patent reissue No. 6990, and aver that the said reissued letters patent are not for the same invention as were the said original letters patent, but are wholly invalid and void.

10. These defendants further aver that the drawings of the specification upon which the said reissued letters patent were obtained were altered or amended by the addition and interpolation of new features, ingredients, and devices which had not been described, shown, or suggested in the specification or drawings belonging to the application for the said original letters patent, and which did not in fact constitute any material or substantial part of the alleged invention set forth in the said original letters patent and in the application therefor; that nevertheless the said new features, ingredients, and devices so added and interpolated in the drawings belonging to the said reissued letters patent were in the specifi-

35 cation thereof described and claimed as the subject-matter of invention intended to be secured thereby, and that such re-

construction of the drawings, specifications, and claims was not authorized or permitted by the provisions of any statute of the United States, but was wholly unlawful and rendered the said reissued patent invalid and void.

11. These defendants further aver that the alteration and amendment of the drawings and specification belonging to the said reissued letters patent as recited in the bill of complaint was contrary to the provisions of the statutes of the United States in such case made and enacted, and that the Commissioner of Patents exceeded his jurisdiction and transcended his legal duty, power, and authority when he allowed the said drawings and specifications to be so altered and amended and caused the said reissued letters patent to be granted.

12. These defendants further aver that the first claim set forth in the specification of the said reissued letters patent No. 6990 is for subject-matter of invention of which there was neither description, delineation, suggestion, or intimation contained in the said original letters patent No. 75344; that the said first claim of the reissue No. 6990 is for a wholly different invention, which was specified in either of the claims contained in the said original letters patent No. 75344; that the second and third claims of the said reissue No. 6990 are broader and more comprehensive than any claim or claims upon which the said original letters patent No. 75344 were granted; that more than eight years elapsed between the date of the grant of the said original letters patent and the date of the procurement of the said reissued letters patent; that if the omission or
36 absence from the said original letters patent of claims substantially the same as those introduced into the said reissued letters patent constituted such inadvertence, accident, or mistake as the said Thomas R. Bailey, Jr., and his assigns would have been entitled to correct by a reissue seasonably and diligently applied for and obtained, which these defendants deny, all such right of correction was abandoned and lost by laches and unreasonable delay; that these matters are apparent upon the face of the said letters patent themselves, original and reissue, when compared, and that the said reissued letters patent No. 6990 were procured contrary to law, and were and are wholly invalid and void.

13. These defendants further aver that from and after the grant of the said original letters pattent No. 75344, and the promulgation of the specification and claims thereof defining and limiting the nature and scope of the alleged invention thereby intended to be secured, and long before the date of the said reissued letters patent No. 6990, other forms of improvement in hydrants, not embraced or included within the description and terms of the said original specification and claims, were produced by other inventors and constructors, and were put into public use without in any way invading or encroaching upon the exclusive rights and privileges, if any such there were, granted and secured by the said original letters patent; that after such other and non-infringing forms of improvement had been so embodied and publicly used, and after the inventors and constructors thereof had long exercised and enjoyed undisturbed

and undisputed possession and control of the same, the said Thomas R. Bailey, Jr., at the instigation and by the procure-
37 ment of the complainants, in the light of the knowledge meantime acquired, and under the pretense of inadvertence, accident, and mistake, applied for and obtained the said reissued letters patent with claims so enlarged and expanded as to embrace the said forms of improvement which had not been amenable to the claims of the said original letters patent nor obnoxious to any charge of infringement thereon; that the grant of the said reissued letters patent was an abuse and unlawful exercise of the power and authority conferred by statute for the correction and amendment of a defective or insufficient specification, and operates unjustly against the public, and that therefore the said reissued letters patent were and are illegal and void.

14. These defendants further aver that before the date of the application of the said T. R. Bailey, Jr., for the original letters patent aforesaid hydrants having substantially the identical construction of those which have been adopted and used within the municipality of the said city of Detroit, and for the use of which the bill of complaint charges the defendants with infringement upon the said reissued letters patent, were manufactured at Lockport, in the State of New York, by the Niagara Manufacturing Company, a corporation established under the statute laws of the said State of New York, and by Samuel R. C. Mathews, now of Philadelphia, in the State of Pennsylvania, and by Washburn Race, late of Fulton, in the State of New York, now deceased, and were sold to the city of Lockport aforesaid and to others, and were by such vendees put into public use with the full knowledge of the said Thomas R. Bailey, Junior; that from that time onward, both before and after the issue of the original letters patent No. 75344 and down to the date when the said Thomas R. Bailey, Junior, procured the reissued let-
38 ters patent aforesaid No. 6990 and attempted or assumed to assign the same to the complainants, many hundreds and even thousands of hydrants substantially identical in construction with those for which the use of which the defendants are charged with infringement as aforesaid were manufactured by the said Niagara Manufacturing Company, and by the said Samuel R. C. Mathews, and by the said Washburn Race, and by Helen M. Lloyd, now of Toledo, in the State of Ohio, each and all at the said city of Lockport, in the State of New York; and by the said Samuel R. C. Mathews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, and by the firm of R. D. Wood & Co., all of and at the city of Philadelphia, in the State of Pennsylvania, and were by them sold to the principal cities and towns within and throughout the United States and were there put into public use, all with the full knowledge of the said Thomas R. Bailey, Junior; that from before the date of the issue of the said original letters patent down to the date when the said Thomas R. Bailey, Junior, procured the said reissued letters patent and attempted or assumed to assign the same to the complainants other hydrants containing substantially the same features of construction as are described, shown,

and claimed in the said reissued letters patent No. 6990, and particularly embracing and embodying the combination specified in the first claim thereof, were very extensively manufactured and sold by the Boston Machine Company, a corporation established under the statute laws of the State of Massachusetts, at Boston, within the said State of Massachusetts, and were by its numerous vendees in many cities and towns within the United States put into public use, all with the knowledge of the said Thomas R. Bailey, Junior; that on No-
39 vember 16, 1869, letters patent of the United States No 96959 were granted to the said Washburn Race and Samuel R. C. Mathews, both of them of said Lockport, in the State of New York, for their invention of substantially the same structure and combination as are specified and referred to in the first claim of the said reissued letters patent No. 6990, with the full knowledge of the said Thomas R. Bailey, Jr.; that on January 27, 1874, letters patent of the United States, reissue No. 5745, were, with the knowledge of the said Thomas R. Bailey, Junior, granted to the said Boston Machine Company, as the assignee of Zebulon E. Coffin, of Boston, in the State of Massachusetts, for his alleged invention of improvements in hydrants, which embraced, among other things, substantially the same structure and combination as are specified and referred to in the first claim of the said reissued letters patent No. 6990, and which had been described and shown in the original letters patent of the United States No. 80143, granted July 21, 1868, to the said Boston Machine Company, as the assignee of the said Zebulon E. Coffin; that nevertheless the said Thomas R. Bailey, Jr., from the time of his assumed or pretended invention of the structure and combination specified and referred to in the first claim of the said reissue letters patent No. 6990 down to the time of his alleged assignment of the same to the complainants never objected or protested against the manufacture or sale of the hydrants aforesaid by the said Niagara Manufacturing Company, or by the said Samuel R. C. Mathews, or by the said Washburn Race, or by the said Helen M. Lloyd, or by the said firm of R. D. Wood & Co., or any member thereof, or by the said Boston Machine Company, nor objected or protested against the use of such hydrants by any vendee or vendees of
40 the said manufacturers or either of them, nor warned or notified the said manufacturers or either of them, or any of their said vendees, that the said hydrants so manufactured and sold and put into use embraced or embodied any invention originated by or belonging to him, the said Thomas R. Bailey, Junior, nor asserted any adverse claim of invention against the said letters patent No. 96959 or the grantees thereof, Washburn Race and Samuel R. C. Mathews, nor against the said letters patent reissue No. 5745, or the grantees thereof, Zebulon E. Coffin and the Boston Machine Company; but always at all times entirely acquiesced in the aforesaid manufacture, sale, and use of such hydrants, and in the possession of the said letters patent No. 96956 and the said reissue No. 5745, by the respective grantees thereof, and that if the said Thomas R. Bailey, Junior, was ever the original and first inventor of the structure and combination specified and referred to in the first claim of the said reissued

letters patent No. 6990, which these defendants expressly deny, then, both before and after the issue of the said original letters patent No. 75344, he abandoned to the public all exclusive rights to the said invention and dedicated the same to public use.

15. These defendants aver that the hydrants or fire-plugs used within the municipality of the said city of Detroit, and for the use of which the complainants' bill charges the defendants with infringement upon the said reissued letters patent No. 6990, are identically the same as or substantially like the hydrants or fire-plugs in public use within the same municipality, and substantially the same as were in extensive public use and on sale elsewhere within the United States more than two years before the application for the said reissued letters patent No. 6990; that the said
41 hydrants or fire-plugs so used within the said municipality of the city of Detroit cannot be held to be infringements upon the said reissued letters patent No. 6990, nor can the said reissue or any claims thereof sued upon be held to be valid, nor can any relief prayed for in the complainants' bill be granted, unless by such construction and interpretation of the said reissued letters patent No. 6990 and the claims thereof as will also hold to be infringements upon the same hydrants and fire-plugs which had been in extensive public and common use more than two years before the application for the same reissued letters patent; that even if the said Thomas R. Bailey, Junior, was the original and first inventor of the things claimed in the said reissued letters patent No. 6990, which these defendants utterly deny, and even if the subject-matter of the claims thereof sued upon had been suggested or substantially indicated in the said original letters patent No. 75344 as the invention of the said Thomas R. Bailey, Junior, which these defendants also utterly deny, yet that nevertheless the failure to claim the same in the said original letters patent was not due to any inadvertence, accident, or mistake; that the said application for reissue was not made with due diligence; that the said Thomas R. Bailey, Junior, was guilty of gross laches and negligence in respect thereto; that a large part of the entire number of hydrants or fire-plugs used within the said municipality of the city of Detroit were procured and put into use therein before the date of the said reissued letters patent No. 6990 and before the date of the application therefor; that all the hydrants or fire-plugs for the use of which the defendants are charged with infringement in the complainants' bill are of substantially the same construction as those procured and
42 put into use within the said municipality of the city of Detroit before the date of the said reissued letters patent No. 6990; that hydrants or fire-plugs of such construction did not in any way infringe or encroach upon any exclusive rights, if such there were, granted or secured by the said original letters patent No. 75344; that the defendant, The City of Detroit, in procuring and putting into use and continuing to use the said hydrants or fire-plugs, and the other defendants, The Fire Commission of the City of Detroit and The Board of Water Commissioners of the City of Detroit, or either of them, in acting on behalf of the city of De-

troit in respect to the said hydrants or fire-plugs, were entitled to rely upon the express declarations contained in the said original letters patent No. 75344; that the claims thereof set forth in the alleged invention of the said Thomas R. Bailey, Junior, so as to distinguish it from all other things, and were justified in believing that any invention of the said Thomas R. Bailey, Jr., if such there was, which might have been embraced in his said original letters patent, but which were not particularly pointed out and distinctly claimed therein, had been dedicated to the public and could be lawfully used by any one who so desired, and therefore these defendants say that they ought not to suffer from the consequences of any errors, mistakes, laches, negligences, or ignorance of the said Thomas R. Bailey, Junior, in respect to any subject-matter of invention not specifically set forth and claimed as such in the said original letters patent No. 75344.

16. These defendants further aver that ever since some time in the year 1872 hydrants such as those for the use of which the defendants are, in the bill of complaint, charged with infringement upon the said reissued letters patent No. 6990 have been
43 constantly and publicly used by the defendant, The City of Detroit, within its municipality; that meantime, from year to year, the defendant, The City of Detroit, acting for itself or through and by the agency of the defendant, The Fire Commission of the City of Detroit, or the defendant, The Board of Water Commissioners of the City of Detroit, has procured and put into public use within the said municipality large numbers of hydrants having identically the same construction as those originally adopted and put into use as aforesaid in the year 1872, until the aggregate number of such hydrants had amounted to several hundreds at the date of filing of the said bill of complaint; that the complainants, the said James Flower, Thomas Flower, and George Flower, and each of them, well knew all these facts during the whole period of the time mentioned, covering more than eleven years; that although a large number of the same hydrants were already in use in the same municipality of the city of Detroit at the date when the said Thomas R. Bailey, Junior, attempted or assumed to assign to the complainants the said reissued letters patent No. 6990, which he had procured at their instigation and for their benefit; and although thereafter, during the next seven years and upwards which intervened before the date of the filing of the said bill of complaint, many more of the same hydrants were procured as aforesaid and put into public use within the said municipality of the city of Detroit, yet that nevertheless the complainants all this time neglected to prosecute their claims, if any they ever had, under the reissued letters patent aforesaid, No. 6990, against the defendants on account of the use of the said hydrants, and that by reason of the laches of the complainants and the lapse of time and the staleness of
44 their said claims, the validity of which the defendants have always denied and still continue to deny, the complainants are not entitled to any relief prayed for in their said bill.

17. These defendants further aver that the several supposed or

pretended causes of action or grounds of suit mentioned or referred to in the said bill of complaint did not, nor did any or either of them, arise or accrue within six years before the said bill of complaint was filed, or before the defendants were served with process thereon; nor have the defendants at any time within six years before the said bill of complaint was exhibited, or process thereon sued out against them, or at any other time or times promised or agreed to come to any account, or acknowledged or acquiesced in any claim or claims of the complainants under the said reissued letters patent No. 6990, concerning or in respect to the construction of any hydrants or fire-plugs, or the use of the same within the municipality of the said city of Detroit, and that by force of the statutes of limitation and of the principles of equity conformable thereto the complainants are not entitled to any account as prayed for in their said bill, and are barred from maintaining or prosecuting this suit.

18. These defendants further aver that a very large number of the hydrants or fire-plugs used within the municipality of the said city of Detroit since March 14, 1876, the date of the reissued letters patent aforesaid, No. 6990, had prior to that date lawfully been manufactured and sold for use to the defendant, the said City of Detroit, without restriction, reservation, or condition, and became and were the lawful property of the said defendant, and did not infringe upon any rights, if such there were, granted to the said Thomas R. Bailey, Junior, under or by virtue of any letters
45 patent then in force, and did not contain or embody any devices, contrivances, structure, or combination whatsoever described or claimed as the invention of the said Thomas R. Bailey, Junior, or embraced in the monopoly which the said original letters patent No. 75344 purported to secure to him or his assigns; that ever since the defendant, the said City of Detroit, became so possessed of the said hydrants or fire-plugs as its lawful property it has had and still continues to have the full and unrestricted right to use the same, and has neither done nor suffered any act by which such right could be forfeited or impaired; that the said Thomas R. Bailey, Junior, and his assigns, by the terms and limitations of the specifications and claims upon which he obtained the said original letters patent No. 75344, and by promulgation thereof, as describing and defining the nature and extent of his alleged invention, intended to be secured by the said original letters patent, were and are concluded and estopped, both at law and in equity, from defeating or disturbing the title and property of the said defendant, The City of Detroit, in the said hydrants or fire-plugs, and its right to use the same or from attempting so to do by procurement of the reissue aforesaid, and that, whatever may be the scope and purport of the said reissued letters patent No. 6990, the continued use of the said hydrants or fire-plugs by the defendant, The City of Detroit, or by either of the other defendants acting on its behalf, since May 14, 1876, the date of the said reissued letters patent, has been and is the just and legal exercise of a right vested in the defendant, The City of Detroit, by the prior acquisition and ownership of the said

hydrants or fire-plugs, and does not constitute a cause of
46 action arising after the said patent so reissued within the meaning and intent of the statutes of the United States in such case made and provided.

19. These defendants further aver that the said City of Detroit having, as aforesaid, become possessed of the hydrants or fire-plugs purchased by it or for it as its lawful property before March 14, 1876, and having thereby lawfully acquired the right and liberty to use the same, it cannot be deprived of such property nor of such right and liberty of use without due process of law, and that the procurement of the said reissued letters patent No. 6990 by the said Thomas R. Bailey, Junior, upon the surrender of the said original letters patent No. 75344, was not such due process of law as would or could deprive the defendant, the said City of Detroit, of its said property, right, or liberty, or create a cause of action operating to so deprive it, within the meaning and intent of the provisions of the Constitution of the United States and of the laws enacted and administered thereunder.

20. These defendants further aver that the said alleged invention and improvement, or material and substantial parts thereof, described and claimed as new in the said letters patent, reissue No. 6990, were, before the assumed or pretended origination or discovery thereof by the said Thomas R. Bailey, Junior, known and used by the following-named persons at the respective places hereinafter specified, to wit:

By Samuel R. C. Mathews, of Philadelphia, in the State of Pennsylvania, at Seneca Falls and at Lockport, in the State of New York.

By Washburn Race, late of Fulton, in the State of New York, now deceased, at Seneca Falls and at Lockport, in the State of New York.

47 By the firm of Race & Mathews, at Seneca Falls, in the State of New York.

By William P. Daniels, late of Lockport, in the State of New York, now deceased, at said Lockport.

By the firm of Race, Mathews & Company, at Lockport, in the State of New York.

By the Niagara Manufacturing Company, a corporation, at Lockport, in the State of New York.

By Helen M. Lloyd, of Toledo, in the State of Ohio, at Lockport, in the State of New York.

By Cornwall J. Lloyd, late of Toledo, in the State of Ohio, now deceased, at Lockport, in the State of New York.

By the municipal government of the city of Lockport, within its municipality, in the State of New York.

By the mayor, alderman, commonalty of the city of New York, within its municipality, in the city, county, and State of New York.

By James D. Keegan, of and at the said city of New York.

By Albert Chesebro, of and at the said city of New York.

21. And these defendants, for the reasons hereinbefore recited, submit that they ought not to be decreed to account to the complain-

ants, nor to pay anything in the nature of profits and damages, nor to be enjoined as in the bill of complaint is prayed; but, without admitting that any other matter contained in said bill of complaint material to be answered unto, and not herein already sufficiently answered, is true to their knowledge or belief, submit that the complainants are not entitled to any relief whatsoever against the defendants. All of which these defendants are ready to aver,
48 maintain, and prove as this honorable court shall direct, and pray to be hence dismissed with reasonable costs and charges in this behalf most wrongfully sustained.

[Seal of the City of Detroit.]

THE CITY OF DETROIT,
By L. S. TROWBRIDGE, *Controller.*

Attest: ALEX. A. SAENGER, *City Clerk.*

[Seal of the Board of Water Commissioners of the City of Detroit.]

THE BOARD OF WATER COMMISSIONERS
OF THE CITY OF DETROIT,
By C. HURLBUT, *President.*

Attest: HENRY STARKEY, *Secretary.*

FIRE COMMISSION OF THE
CITY OF DETROIT,
By JEROME CROUL, *President.*

HENRY M. DUFFIELD,
Solicitor for Defendants.

49 *Answer of Benjamin Vernor. Filed February* 4, 1884.

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al.*
vs.
CITY OF DETROIT *et al.* } No. 2872.

The separate answer of Benjamin Vernor, defendant, to the bill of complaint of James Flower, Thomas Flower, and George Flower.

This defendant, reserving to himself all right of exception to any and all matters contained in the said bill of complaint, makes answer thereto, or to so much thereof as he is advised is material to be answered, as follows:

1. This defendant says that in and by said bill of complaint he is not charged with infringement save in so far as he has acted as president of the fire commission of the city of Detroit, and he avers that he is not now, and has not since the 1st day of April, 1882, been, president of the Detroit fire commission, and he avers that he has not, jointly with the other defendants or either of them, done any acts or had any interest with relation to hydrants or fire-plugs, except so far as he has acted as an officer of the said fire commis-

sion of the city of Detroit; that he has not infringed upon the said reissued letters patent named in the said bill, nor upon any rights of the complainants; that although he is an officer of the said fire commission of the city of Detroit, he has not by vote or otherwise directed that the said defendant, The City of Detroit, or the
50 said defendant, The Fire Commission of the City of Detroit, should use hydrants or fire-plugs which he knew, or believed, or had any reason to believe, infringed or were alleged to infringe upon any rights of the complainants; that he did not know of the existence of the reissued letters patent sued upon until and save as he was informed by complainants' said bill; and so this defendant says that if the said City of Detroit, or the other defendants, or either of them, has infringed upon any rights of the complainants, which he in nowise admits, he is not responsible therefor nor for the consequence thereof.

2. This defendant further avers that with regard to the validity and scope of the reissued letters patent sued upon in and by the complainants' bill, and with regard to the novelty of the alleged invention therein described and claimed, and with regard to the right of the respective parties to this suit in respect to the subject-matter of the bill of complaint, he adopts as part of his answer the allegations and averments contained in paragraphs one to twenty, inclusive, of the joint and several answer of the defendants, The City of Detroit and The Fire Commission of the City of Detroit and The Board of Water Commissioners of the City of Detroit, and prays that the same may be deemed to be incorporated herewith as a part hereof with the same effect as if herein set forth at length.

3. And this defendant further says that the complainants are not entitled to any account from him, nor to any payment of profits or damages by him, nor to any injunction against him, as prayed for in said bill of complaint; but this defendant, without admitting that any other matter contained in said bill of complaint material to be answered unto, and not herein already sufficiently
51 answered, is true to his knowledge or belief, submits that the complainants are not entitled to any relief whatsoever against him; all of which this defendant is ready to aver, maintain, and prove as this honorable court shall direct, and prays to be hence dismissed with reasonable costs and charges in this behalf most wrongfully sustained.

BENJAMIN VERNOR.

HENRY M. DUFFIELD,
Solicitor for Defendant, Benjamin Vernor.

(Replications in due form were filed to the foregoing answer.)

52 *Replication to Answer of City of Detroit, Fire Commission, and Board of Water Commissioners.*

UNITED STATES OF AMERICA, *Eastern District of Michigan:*

In the Circuit Court in and for said District. In Equity.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } No. 2872.

The replication of James Flower, Thomas Flower, & George Flower, complainants, to the joint and several answer of The City of Detroit, Fire Commission, and The Board of Water Commissioners of said city.

These repliants, saving and reserving to themselves, now and at all times hereafter, all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer of the said defendants, for replication thereunto say that they will aver, maintain, and prove their bill of complaint to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the said defendants is uncetain, untrue, and insufficient to be replied unto by these repliants, without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed and avoided, traversed or denied, is true; all which matters and things these repliants are ready to aver, maintain, and prove as this honorable court shall direct, and humbly pray as in and by their said bill they have already prayed.

E. J. HILL & SONS,
Solicitors for Complainants.

Henry M. Duffield, Esq., sol. for def'ts:

Please take notice that the complainants in the above-entitled cause desire the evidence to be adduced in the cause to be taken orally, pursuant to the rule of court in such case made and provided.

Dated Feb'y 6, 1884.

E. J. HILL & SONS,
Sol'rs for Complainants.

Endorsed: 2872. In the United States circuit court in and for the eastern dist. of Mich. James Fowler *et al. vs.* The City of Detroit *et al.* Replication to joint & and several answer of The City of Detroit *et al.* and notice under 67th rule, etc. Filed this 7th day of Feb'y, A. D. 1884. Walter S. Harsha, clerk.

53 *Replication to Answer of Benjamin Vernor.*

UNITED STATES OF AMERICA, *Eastern District of Michigan:*

In the Circuit Court of the United States. In Equity.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } No. 2872.

The replication of James Flower, Thomas Flower, and George Flower, complainants, to the answer of Benjamin Vernor, president of the fire commission of the city of Detroit:

These repliants, saving and reserving unto themselves, now and at all times hereafter, all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer of the said defendant, for replication thereunto say that they will aver, maintain, and prove their bill of complaint to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by these repliants, without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied, unto and not herein and hereby well and sufficiently replied unto, confessed and avoided, traversed or denied, is true; all which matters and things these repliants are ready to aver, maintain, and prove as this honorable court shall direct, and humbly pray as in and by their said bill they have already prayed.

E. J. HILL & SONS,
Solicitors for Complainants.

Endorsed: 2872. In the United States circuit court in and for the eastern dist. of Mich. James Flower *et al. vs.* The City of Detroit *et al.* Replication to answer of Benjamin Vernor, pres't, etc. Filed this 7th day of Feb'y, A. D. 1884. Walter S. Harsha, clerk.

54 *Apportionment of the Time for Taking Evidence. Amendment to 67th Rule, December Term, 1869. 9 Wall, VII.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

It is hereby stipulated and agreed, on behalf of the respective parties to the above-entitled cause, that an order of court may be entered therein enlarging and apportioning the time for taking evidence as follows:

Complainants may have until and including March 15th, 1884, within which to take evidence in support of the bill.

Defendants may have thereafter until and including May 15th, 1884, within which to take evidence in defence.

Complainants may have thereafter until and including June 15th, 1884, within which to take evidence in reply.

Dated February 15th, 1884.

EDWARD J. HILL,
Solicitor and of Counsel for Complainants.
HENRY M. DUFFIELD,
Solicitor and of Counsel for Defendants.

Endorsed: 2872. Circuit court of the United States, eastern district of Michigan. In equity. James Flower *et al. vs.* City of Detroit *et al.* Apportionment of time for taking evidence. Filed in clerk's office Feb'y 15th, 1884. Walter S. Harsha, clerk.

55 *Order Apportioning Time to Take Proofs.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Friday, the fifteenth day of February, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.*
} In Equity.

On reading and filing stipulation, and on motion of E. J. Hill, of counsel for plaintiffs, the time for taking testimony is apportioned as follows: Plaintiffs may have until and including March 15, 1884, within which to take evidence in support of the bill; defendants may have thereafter until and including May 15, 1884, within which to take evidence in defense; plaintiffs may have thereafter until and including June 15, 1884, within which to take evidence in reply.

56 *Order Appointing Walter S. Harsha Special Examiner.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Thursday, the twenty-eighth day of February, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT *et al.*
} In Equity.

In this cause, on motion of Mr. E. J. Hill, of counsel for plaintiffs, it is ordered that Mr. Walter S. Harsha, of Detroit, be, and he is hereby, appointed special examiner to take the proofs in said cause at Detroit.

57 *Notice of Taking Testimony at Detroit.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al.*
vs.
CITY OF DETROIT *et al.* } No. 2872.

To Henry M. Duffield, Esq., sol'r & of counsel for defendants:

Please take notice that on Thursday, February 28th, A. D. 1884, at the clerk's office of said court, in the city of Detroit, before one of the examiners of said court, commencing at 10 o'clock a. m. of said day, the complainants will proceed to take testimony in support of their bill of complaint, in pursuance of the notice, stipulation, and order heretofore given, made, and entered herein, at which time and place you are hereby notified to be present and cross-examine the witnesses to be produced and examined as you may think fit.

Dated February 21st, 1884.

E. J. HILL & SONS,
Sol'rs for Complainants.

Endorsed: U. S. cir. court, eastern dist. of Mich. Flower *et al. vs.* City of Detroit. Notice. E. J. Hill & Sons, for complainants. Copies sent to H. M. Duffield, Detroit, and Geo. L. Roberts, 95 Milk St., Boston, Mass.

58 *Motion for Leave to Amend Answer.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

The defendants in the above-entitled cause move this honorable court for leave to amend their answer as follows:

First. By changing the number of the final paragraph of the joint and several answer of The City of Detroit and of The Fire Commission of the City of Detroit and of The Board of Water Commissioners of the City of Detroit from 21 to 24.

Second. By inserting immediately after paragraph 20 thereof the following averments:

59 21. These defendants further aver that the said Thomas R. Bailey, Junior, was not the original and first inventor or discoverer of any material part of the thing or things patented, or attempted to be patented, in and by the said reissued letters patent No. 6990, and especially was not the original and first inventor of what is specified and referred to in the first claim of the said reissued letters patent No. 6990, but that before the date of his assumed or pretended invention or discovery thereof the same thing or things, and every material and substantial part thereof, and especially the thing or things specified and referred to in the said first

claim of the said reissued letters patent No. 6990, had been originated and invented by the said Washburn Race and Samuel R. C. Mathews.

22. These defendants further aver that, whatever may be the date when the said Thomas R. Bailey, Junior, first conceived the invention, or any material and substantial part thereof, described and claimed in the said reissued letters patent No. 6990, he did not use reasonable diligence in adapting and perfecting the same, but that before he had done anything whatsoever to adapt and perfect it the said Washburn Race and Samuel R. C. Matthews originated the said invention, and every material and substantial part thereof, and especially what is specified and referred to in the first claim of the said reissued letters patent No. 6990, and diligently perfected the same and reduced it to practice, and that the said Washburn Race and Samuel R. C. Matthews were and are in law and in fact the original and first inventors of the said invention, and every material and substantial part thereof, which, in the race of diligence, they were the first to adapt, perfect, and reduce to practice.

23. These defendants further aver that the said Thomas R. Bailey, Junior, surreptitiously and unjustly obtained the said letters patent reissue No. 6990, for that which was in fact invented by the said Washburn Race and Samuel R. C. Matthews, who had used reasonable diligence in adapting and perfecting the same, and for that also which the said Washburn and Samuel R. C. Matthews were the first to reduce to practice and put into public use and the first to promulgate in and by their letters patent aforesaid, No. 96959, granted November 16, 1869.

Third. By substituting the words "twenty-three" for the word "twenty" in the paragraph designated 2 of the separate answer of Benjamin Vernor.

HENRY M. DUFFIELD,
Solicitor for Defendants.

We consent to the amendment as above specified.
March 4, 1884.

E. J. HILL & SONS,
Sol'rs for Plaintiffs.

Endorsed: No. 2872. Equity. James Flower *et al. vs.* City of Detroit *et al.* Motion for leave to amend answers & consent that such amendments may be made. Filed and entered March 4th, 1884. Jno. Graves, dep'y clerk.

60 *Order Allowing Amendment of Answer.*

In the Circuit Court of the United States for the Eastern District of Michigan, March 4, 1884. In Equity.

In the Case of JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.*, Last Aforesaid.

On reading the consent of E. J. Hill & Sons appended to the mo-

tion last above entered herein, and, on said motion, it is ordered that said motion for leave to amend answer of defendants be, and the same is hereby, granted, and the amendments therein mentioned and moved for allowed.

WALTER S. HARSHA, *Clerk*,
By JNO. GRAVES, *Dep'y*.

61 *Amendments to the Answers of the Defendants. Filed March* 4, 1884.

1st. By changing the number of the final paragraph of the joint and several answers of The City of Detroit and of The Fire Commission of the City of Detroit and of The Board of Water Commissioners of the City of Detroit from 21 to 24.

2d. By inserting immediately after paragraph 20 thereof the following averments:

21. These defendants further aver that the said Thomas R. Bailey, Jr., was not the original and first inventor and discoverer of any material part of the thing or things patented, or attempted to be patented, in and by the said reissued letters patent No. 6990, and especially was not the original and first inventor of what is specified and referred to in the first claim of the said reissued letters patent No. 6990, but that before the date of his assumed or pretended discovery thereof the same thing or things, and every material and substantial part thereof, and especially the thing or things specified and referred to in the said first claim of the said reissued letters patent No. 6990, had been originated and invented by the said Washburn Race and Samuel R. C. Mathews.

22. These defendants further aver that, whatever may be the date when the said Thomas R. Bailey, Jr., first conceived the invention, or any material and substantial part thereof, described and claimed in the said reissued letters patent No. 6990, he did not use reasonable diligence in adapting and perfecting the same, but that, before he had done anything whatsoever to adapt and perfect it, the said

62 Washburn Race and Samuel R. C. Mathews originated the said invention, and every material and substantial part thereof, and especially what is specified and referred to in the first claim of the said reissued letters patent No. 6990, and diligently perfected the same and reduced it to practice, and that the said Washburn Race and Samuel R. C. Mathews were and are in law and in fact the original and first inventors of the said invention, and every material and substantial part thereof, which, in the race of diligence, they were the first to adapt, perfect, and reduce to practice.

23. These defendents further aver that the said Thomas R. Bailey, Jr., surreptitiously and unjustly obtained the said letters patent reissue No. 6990, for that which was in fact invented by the said Washburn Race and Samuel R. C. Mathews, who had used reasonable diligence in adapting and perfecting the same, and for that also which the said Washburn Race and Samuel R. C. Mathews were the first to reduce to practice and put into public use and the first

to promulgate in and by their letters patent aforesaid, No. 96959, granted November 16, 1869.

3rd. By substituting the words "twenty-three" for the word "twenty," in the paragraph designated 2, of the separate answer of Benjamin Vernor.

HENRY M. DUFFIELD,
Solicitor for Defendants.

We consent to the amendments as above specified.

E. J. HILL,
Solicitor for Plaintiffs.

63 *Order Appointing Oscar Frisbie Special Examiner at N. Y.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Wednesday, the fifth day of March, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, FIRE COMMISSION OF THE CITY of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

On motion of Mr. E. J. Hill, of counsel for the plaintiffs, it is by the court now here ordered that Mr. Oscar Frisbie, attorney-at-law, of 233 Broadway, New York city, be, and he is hereby, appointed special examiner to take proofs in the case in said city of New York.

64 *Stipulation for Enlargement and Apportionment of Time for Taking Evidence.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al.*
vs.
CITY OF DETROIT *et al.* } No. 2872.

It is hereby stipulated and agreed by and between the respective parties to the above-entitled cause that an order of court may be entered therein enlarging and apportioning the time for taking evidence as follows:

Complainants may have until and including April 15, 1884, within which to take evidence in support of their bill; defendants may have thereafter until and including June 15, 1884, within which to take evidence in defence; complainants may have there-

after until and including July 15, 1884, within which to take evidence in reply.

Dated March 8, 1884.

EDWARD J. HILL, *for Pl'ffs.*
GEO. L. ROBERTS, *for Def'ts.*

Endorsed: No. 2872. Equity. Jas. Flower *et al. vs.* City of Detroit *et al.* Stipulation for order of court apportioning time for taking evidence. Filed in clerk's office March 8, 1884. Walter S. Harsha, clerk.

65 *Order Enlarging Time to Take Proofs.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Saturday, the eighth day of March, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause, on reading and filing stipulation signed by counsel for the respective parties, it is ordered that the time to take proofs be, and the same is hereby, enlarged and apportioned as follows: Plaintiffs may have until and including April 15, 1884, within which to take evidence in support of their bill; defendants may have thereafter until and including June 15, 1884, within which to take evidence in defense; plaintiffs may have thereafter until and including July 15, 1884, within which to take evidence in reply.

66 *Order Appointing John T. Joyce Special Examiner at Lockport.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Tuesday, the eleventh day of March, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, FIRE COMMISSION OF THE CITY of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

On motion of E. J. Hill, Esq., of counsel for plaintiffs, it is ordered that Mr. John T. Joyce, of Lockport, New York, be, and he is hereby, appointed special examiner to take proofs in said cause at Lockport.

67 *Notice of Intention to Introduce Certified Copies in Evidence and Consent that Plaintiffs' Solicitor May Take Certain Exhibits.*

U. S. Cir. C't, East. Dist. Mich. In Equity.

FLOWER *et al.*
vs.
DETROIT *et al.* } No. 2872.

Counsel for def'ts signifies his intention of introducing in evidence certified copy of the file wrapper and contents of the original application for Thos. R. Bailey's patent, No. 75344, and stipulates that if he does not do so within the time allotted to def'ts for taking evidence the plaintiffs may introduce the same without objection in their evidence in reply.

Detroit, March 11, 1884.

GEO. L. ROBERTS,
Of Counsel for Def'ts.

Consent is given that Walter S. Harsha, Esq., special examiner, may deliver to E. J. Hill, Esq., on his receipt, the models and exhibits produced in evidence in taking complainants' evidence-in-chief for use in taking further evidence before other examiners.

GEO. L. ROBERTS,
Of Counsel for Def'ts.

68 *Order Appointing Wm. S. Beaman Special Examiner at New York.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Wednesday, the ninth day of April, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF THE City of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

On reading and filing the stipulation, signed by the solicitors for the respective parties, and on motion of Henry M. Duffield, of counsel for the defendants, it is ordered that William S. Beaman, counselor-at-law, of New York city, be, and he is hereby, appointed special examiner to take the evidence to be adduced orally on behalf of the defendants in the above-entitled cause under the 67th rule, in equity, as amended.

69 *Order that Models be Sent to John T. Joyce, Lockport, N. Y.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Saturday, the fifth day of April, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF THE City of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

On motion of Mr. E. J. Hill, of counsel for the plaintiffs, it is ordered that Walter S. Harsha, special examiner, do transmit to Mr. John T. Joyce, special examiner at Lockport, New York, the following exhibits in said cause, viz:

1. Exhibit Bailey Original Model.
2. Exhibit Defendants' Model.
3. Exhibit Flower Model.
4. Exhibit Old Bartholomew Hydrant.
5. Exhibit Box, Old Bartholomew Hydrant.
6. Exhibit Pendry Model.

Also keys.

It is further ordered that, at the conclusion of the examination before him, said John T. Joyce send said models to Mr. James H. McKenney, special examiner at Washington, D. C.

70 *Order Appointing James H. McKenney Special Examiner, Washington.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Saturday, the fifth day of April, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF THE City of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

On motion of Mr. E. J. Hill, of counsel for the plaintiffs, it is ordered that Mr. James H. McKenney, of Washington, D. C., be, and he is hereby, appointed special examiner to take proofs in said cause at said city of Washington.

71 *Stipulation for Appointment of Wm. S. Beaman Special Examiner.*

United States Circuit Court, Eastern District of Michigan. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF THE CITY OF DETROIT, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit.

It is hereby stipulated and agreed that William S. Beaman, counsellor-at-law, of New York city, may be appointed by the court to be special examiner to take evidence to be adduced orally on behalf of the defendants in the above-entitled cause under the 67th rule, in equity, as amended.

E. J. HILL & SONS,
For Complainants.
GEO. L. ROBERTS,
For Defendants.
HENRY M. DUFFIELD,
Sol'r for Def'ts.

Endorsed: 2872. U. S. cir't court, E. dist. Mich. In equity. Flower *vs.* City of Detroit. Stipulation. Filed in clerk's office, April 9th, 1884. Walter S. Harsha, clerk.

72 *Order Appointing Warren C. Stone Special Examiner, Washington, D. C.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Saturday, the nineteenth day of April, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF THE City of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

On reading and filing stipulation signed by solicitors for respective parties, it is ordered that Mr. Warren C. Stone be, and he is hereby, appointed special examiner to take proofs in this cause in the city of Washington.

This order is made *nunc pro tunc* as of April 15th.

73 *Order that Mr. John T. Joyce Return Models to Detroit.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjourn-

ment, at the district court-room, in the city of Detroit, on Saturday, the nineteenth day of April, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

On motion of E. J. Hill, of counsel for plaintiffs, ordered, That John T. Joyce, special examiner at Lockport, New York, return the models heretofore sent to him to Walter S. Harsha, special examiner at Detroit, when parties have done with them at Lockport.

74 *Motion and Consent that Certain Exhibits be Sent to Wm. S. Beaman, Special Examiner.*

Circuit Court of the United Sates, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

The defendant, in the above-entitled cause hereby move this honorable court for an order that the model exhibits introduced in evidence by plaintiffs be forwarded by the clerk to the custody of William S. Beaman, Esq., special examiner, Morse building, 140 Nassau St., New York city, to be by him returned to the court after defendants have closed their evidence in defence.

By their solicitors, GEO. L. ROBERTS.

The order contemplated by the above motion may be entered.
Dated May 27, 1884.

E. J. HILL,
Sol'r for Pl'ffs.

Endorsed: 2872. Stipulation for order to send models to N. Y. Filed May 28, 1884. Walter S. Harsha, clerk.

75 *Order that Models be Sent to William S. Beaman, New York.*

At a session of the circuit court of the United States for the eastern district of the Michigan, continued and held, pursuant to adjournment at the district court-room, in the city of Detroit, on Thursday, the twenty-ninth day of May, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause, on motion of Mr. George L. Roberts, of counsel for defendants, Mr. E. J. Hill, of counsel for plaintiffs consenting, it is ordered that the model exhibits introduced in evidence by the plaintiffs be forwarded by the clerk to the custody of William S.

Beaman, Esq., special examiner, Morse building, 140 Nassau St., New York city, to be by him returned to the court after the defendants have closed their evidence in defense.

76 *Stipulation for Appointment of John G. Stetson Special Examiner.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

It is hereby stipulated and agreed by and between the respective parties to the above-entitled cause that the court may appoint John G. Stetson, Esquire, of Boston, Massachusetts, to be special examiner to take evidence to be adduced orally on behalf of the defendants, and that such appointment may apply to all evidence which may have been taken by him before the court shall have entered an order as appointing him.

And it is further agreed that the court may enter a further order extending the time within which the defendants may take evidence to and including Wednesday, June 18, 1884.

Dated June 12, 1884.

EDWARD J. HILL,
Sol'r for Compl'ts.
GEO. L. ROBERTS,
Sol'r for Def'ts.

Endorsed: 2872. U. S. circuit court, east. dist. Mich. In equity. James Flower *et al. vs.* The City of Detroit *et al.* Stipulation for order appointing Jno. G. Stetson, of Boston, special examiner, &c. Filed June 16th, 1884. John Graves, dep. clerk.

77 *Stipulation that Wm. S. Beaman Forward Certain Exhibits.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

It is hereby stipulated and agreed by and between the respective parties to the above-entitled cause that William S. Beaman, Esq., special examiner, may forward to John G. Stetson, Esq., special examiner at Boston, Mass., certain exhibits to be noted by him on a list hereto attached, and that such exhibits shall be returned into court by the said John G. Stetson, Esq.

Dated June 12, 1884.

EDWARD J. HILL,
For Compl't.
GEO. L. ROBERTS,
For Defendants.

78 *List of Exhibits Forwarded to John G. Stetson, Esq., Special Examiner at Boston, Mass.*

1. Ex. Race, Mathews & Co. Lithograph.
2. Ex. Niagara Manufacturing Co. Lithograph.
3. Ex. Duval & Hunter Lithograph.
4. Ex. Race & Mathews 1858 Patent.
5. Ex. Race & Mathews Reissue of 1858 Patent.
6. Ex. Race & Mathews 1869 Patent.
7. Ex. Coffin Original Patent.
8. Coffin Reissue.
9. Ex. Supreme Court Decision.
10. Ex. Board Model New York Hydrant.
11. Ex. Board Model Race & Mathews Old-Style Hydrant.
12. Ex. Board Model Race & Mathews New-Style Hydrant.
13. Ex. Board Model Bailey Hydrant.
14. Ex. Board Model Boston Machine Co. Hydrant.
15. Ex. Bailey Original Model.
16. Ex. Defendants' Model.
17. Ex. Flower Model.
18. Ex. Bailey Hydrant Set-Screw.
19. Ex. Pendry Model.
20. Ex. Old Bartholomew Hydrant.
21. Ex. Box, Old Bartholomew Hydrant.

New York, June 12th, 1884.

W. S. BEAMAN,
Special Examiner.

All these exhibits are returned into court herewith by me.

JOHN S. STETSON,
Special Examiner.

79 *Order Appointing John G. Stetson Special Examiner, Boston.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Saturday, the fourteenth day of June, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.*
} In Equity.

On filing stipulation signed by counsel for respective parties, and on motion of Mr. Geo. L. Roberts, of counsel for defendants, it is ordered that Mr. John G. Stetson, of Boston, Massachusetts, be, and he is hereby, appointed special examiner to take proofs in said cause at Boston. On like stipulation and motion it is further ordered that the time in which the defendants may take their proofs be, and the same is hereby, extended until June 18th.

80 *Notice of Taking Testimony before Walter S. Harsha, Special Examiner, with Proof of Service.*

UNITED STATES OF AMERICA,
Eastern District of Michigan, } ss:

In the Circuit Court of the United States. In Chancery.

JAMES FLOWER *et al.*
vs.
CITY OF DETROIT *et al.* } No. 2872.

To Henry M. Duffield, Esq., solicitor, and George L. Roberts, Esq., of counsel, for the above-named defendants.

GENTLEMEN: Please take notice that on Monday, July 7th, 1884, at 10 o'clock a. m., at the office of Walter S. Harsha, clerk of said court, in the city of Detroit, the plaintiffs above named will, under and pursuant to rule 67, in equity, as amended, proceed to take testimony in this cause and continue taking the same from day to day until the same is concluded before the said Walter S. Harsha, special examiner, at which time and place you are hereby notified to be present, &c.

Dated June 27th, 1884.

EDWARD J. HILL & SONS,
Sol'rs for Pl'ffs.

UNITED STATES OF AMERICA, *Northern Dist. of Ill.:*

STATE OF ILLINOIS,
Cook County, } ss:

Edward J. Hill, being duly sworn, says that on Friday, July 27th, 1884, he mailed a copy of the within notice to each of the persons named in the same, the one as solicitor and the other as counsel for the defendants, directed, respectively, as follows, viz: "Henry M. Duffield, Detroit, Michigan," and "George L. Roberts, Esq., 95 Milk street, Boston, Mass.," postage paid at the post office in Chicago, Illinois.

EDWARD J. HILL.

Subscribed and sworn to before me this 27th day of June, 1884.

RICHARD W. HILL,
Notary Public, Cook Co., Ills.

Endorsed: No. 2872. In circuit court of the United States for the eastern district of Michigan. James Flower *et al. vs.* The City of Detroit *et al.* Notice. Filed in clerk's office June 30, 1884. Walter S. Harsha, clerk.

81 *Order Extending Time to Take Plaintiffs' Rebutting Testimony.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Saturday,

the fifth day of July, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

On motion of E. J. Hill, of counsel for plaintiffs, it is ordered that the time for plaintiffs to take testimony in reply be, and the same is hereby, extended twenty days after July 15.

82 *Stipulation, Certificates of Special Examiner, &c.*

Circuit Court of the United States, Eastern District of Michigan.

JAMES FLOWER *et al.*
vs.
CITY OF DETROIT *et al.* } In Equity.

Stipulation.

It is hereby stipulated and agreed by and between the parties to the above-entitled cause that the two hydrants put in evidence by defendants, marked, respectively, "Exhibit Race & Mathews Hydrant and Exhibit Bailey Hydrant," together with the set-screw, marked "Exhibit Bailey Hydrant Set-Screw," and the lithograph, marked "Exhibit Race, Mathews & Co. Lithograph," also put in evidence by defendants, may be sent by John T. Joyce, Esquire, special examiner [and] to William S. Beaman, Esquire, special examiner, to be by the latter returned into court, but subject to objection already made.

EDWARD J. HILL,
Sol'r for Pl'ffs.
GEO. L. ROBERTS,
Sol'r for Def'ts.

Sent Exhibit Bailey Hydrant by express to William S. Beaman, Morse building, New York city.

Sent Exhibit Race & Mathews Hydrant by express to William S. Beaman, Rochester, N. Y., to be called for, or to Geo. L. Roberts.

Delivered to George L. Roberts Exhibit Bailey Hydrant Set-Screw & Exhibit Race, Mathews & Co. Lithograph, to be by him delivered to William S. Beaman.

Lockport, May 28, 1884.

JOHN T. JOYCE,
Special Examiner.

83 Sent Exhibit "Bailey Hydrant Set-Screw," which I received from George L. Roberts, Esq., and Exhibit Race, Mathews & Co. Lithograph," to John G. Stetson, Esq., U. S. circuit court, Boston, Mass.

New York, June 12, 1884.

WM. S. BEAMAN,
Special Examiner.

The Exhibit Bailey Hydrant was received by me at New York June 3rd, 1884, and the Exhibit "Race & Mathews Hydrant" was received by me at Rochester, New York, May 29th, 1884, and was in my custody at Rochester till May 30, 1884, when it was taken to Utica, N. Y., and forwarded it to New York, at which place I received it on June 3rd, 1884. Both of said exhibits have been in my custody since their arrival in New York. I forwarded said Exhibits "Bailey Hydrant" and "Race & Mathews Hydrant" to Walter S. Harsha, clerk of U. S. circuit court, Detroit, Michigan, July 7th, 1884, by the American Express Co.

WM. S. BEAMAN,
Special Examiner.

84 At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court-room, in the city of Detroit, on Thursday, the twenty-ninth day of May, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause, on motion of Mr. Geo. L. Roberts, of counsel for defendants, Mr. E. J. Hill, of counsel for plaintiffs, consenting, it is ordered that the model exhibits introduced in evidence by the plaintiffs be forwarded by the clerk to the custody of William S. Beaman, Esq., special examiner, Morse building, 140 Nassau street, New York city, to be by him returned to the court after defendants have closed their evidence in defense.

UNITED STATES OF AMERICA:

The Circuit Court of the United States for the Eastern District of Michigan.

I, Walter S. Harsha, clerk of the circuit court of the United States for the eastern district of Michigan, do hereby certify that the above and foregoing is a true copy of an order entered on the journal of the proceedings of said court in the cause therein entitled as the same appears of record in my office; that I have compared the same with the original entry of said order, and it is a true and correct transcript therefrom and of the whole thereof.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at Detroit, in said district, this twenty-ninth day of May, in the year one thousand eight hundred and eighty-four, and of the Independence of the United States of America the one hundred and eighth.

[SEAL.] WALTER S. HARSHA, *Clerk.*

85 *Copy of Stipulation.*

Circuit Court of the United States, Eastern District of Michigan. In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

It is hereby stipulated and agreed by and between the respective parties to the above-entitled cause that Wm. S. Beaman, Esq., special examiner, may forward to John G. Stetson, Esq., special examiner, at Boston, Mass., certain exhibits, to be noted by him on a list hereto attached, and that such exhibits shall be returned into court by the said John G. Stetson, Esq.

Dated June 12, 1884.

EDWARD J. HILL,
For Compl'ts.
GEO. L. ROBERTS,
For Def'ts.

86 In pursuance of the stipulation, of which the foregoing is a copy, I forwarded to John G. Stetson, Esq., U. S. circuit court, Boston, Mass., on June 12th, 1884, the following exhibits in this cause, viz:

1. Race, Mathews & Co. lithograph.
2. Niagara Manufacturing Co. lithograph.
3. Duval & Hunter lithograph.
4. Race & Mathews 1858 patent.
5. Race & Mathews reissue of 1858 patent.
6. Race & Mathews 1869 patent.
7. Coffin original patent.
8. Coffin reissue.
9. Supreme Court decision.
10. Board model New York hydrant.
11. Board model Race & Mathews old-time hydrant.
12. Board model Race & Mathews new-style hydrant.
13. Board model Bailey hydrant.
14. Board model Boston Machine Co. hydrant.
15. Bailey original model.
16. Defendants' model.
17. Flower model.
18. Bailey hydrant set-screw.
19. Pendry model.
20. Old Bartholomew hydrant.
21. Box, old Bartholomew hydrant.

N. Y., June 20, 1884.

WM. S. BEAMAN,
Special Examiner.

Endorsed: 2872. U. S. circuit court, east. dist. of Mich. In equity. James Flower *et al. vs.* City of Detroit *et al.* Stipulations. Certificates of special examiner, &c. Filed in clerk's office July 9th, 1884. Walter S. Harsha, clerk.

87 *Stipulation.*

Circuit Court of the United States, Eastern District of Pennsylvania.
April Session, 1884. In Equity.

JAMES FLOWER *et al.*
vs.
RICHARD WOOD *et al.* } No. 19.

It is hereby stipulated and agreed by and between the respective parties to the above-entitled cause that all the evidence taken in the equity suit of James Flower *et al. v.* City of Detroit *et al.*, pending in the circuit court of the United States within the eastern district of Michigan, shall be considered and treated as if the evidence for complainants and defendants, respectively, in that suit had been taken, sworn to, and filed on behalf of the complainants and defendants, respectively, in this suit; that a printed copy of the record of evidence in the said Michigan suit, duly certified out of the court wherein the same is pending, shall be filed in this court, and shall, together with the pleadings already filed herein, constitute the record upon which this suit shall be presented for judicial determination at final hearing; that all objections as to order of proof taken in the said Michigan suit are hereby waived, but all other objections taken and noted therein shall stand for adjudication in this suit; that this suit shall not be set down for hearing nor argued before this court until after the hearing and decision of the said Michigan suit by the court wherein the same is pending, and that after such decision is rendered this suit shall not be heard until the exhibits of wood and metal introduced in evidence in the said Michigan suit have been forwarded by the clerk of that court and received by the clerk of this court for use herein; and consent is hereby given that the said Michigan court may, after its decision of the said suit pending before it, enter an order permitting the said transfer of exhibits to this court.

(Signed) EDWARD J. HILL,
Solicitor for Complainants.

(Signed) GEO. L. ROBERTS,
Solicitor & of Counsel for Defendants.

88 UNITED STATES OF AMERICA, } *sct:*
Eastern District of Pennsylvania,

I, Samuel Bell, clerk of the circuit court of the United States of America for the eastern district of Pennsylvania, in the third circuit, do hereby certify the foregoing to be a true and faithful copy of the original stipulations as to testimony, &c., in the case of James Flower *et al.*, complainants, and Richard Wood *et al.*, defendants, No. 19, April sess., 1884, on file and now remaining among the records of the said court in my office.

In testimony whereof I have hereunto subscribed my name and affixed the seal of the said court, at Philadelphia, this twenty-fourth day of July, in the year of our Lord one thousand eight hundred

and eighty-four, and of the Independence of these United States the one hundred and ninth.

[SEAL.] SAMUEL BELL,
Clerk of C. C.

Endorsed: 2872. No. 19. April sess., 1884. C. C. U. S., E. D. of Pa. Flower *et al. vs.* Wood *et al.* Certified copy of stipulation. Filed July 29th, 1884. Jno. Graves, dep'y clerk.

89 *Stipulation.*

Circuit Court of the United States, Eastern District of Pennsylvania.
April Session, 1884. In Equity.

JAMES FLOWER *et al.*
vs.
RICHARD WOOD *et al.* } No. 2.

It is hereby stipulated and agreed by and between the respective parties to the above-entitled cause that all the evidence taken in the equity suit of James Flower *et al. v.* City of Detroit *et al.*, pending in the circuit court of the United States within the eastern district of Michigan, shall be considered and treated as if the evidence for complainants and defendants, respectively, in that suit had been taken, sworn to, and filed on behalf of the complainants and defendants, respectively, in this suit; that a printed copy of the record of evidence in the said Michigan suit, duly certified out of the court wherein the same is pending, shall be filed in this court, and shall, together with the pleadings already filed herein, constitute the record upon which this suit shall be presented for judicial determination at final hearing; that all objections as to order of proof taken in the said Michigan suit are hereby waived, but all other objections taken and noted therein shall stand for adjudication in this suit; that this suit shall not be set down for hearing nor argued before this court until after the hearing and decision of the said Michigan suit by the court wherein the same is pending, and that after such decision is rendered this suit shall not be heard until the exhibits of wood and metal introduced in evidence in the said Michigan suit have been forwarded by the clerk of that court and received by the clerk of this court for use herein; and consent is hereby given that the said Michigan court may, after its decision of the said suit pending before it, enter an order permitting the said transfer of exhibits to this court.

(Signed) EDWARD J. HILL,
Solicitor for Complainants.

(Signed) GEO. L. ROBERTS,
Solicitor & of Counsel for Defendants.

90 UNITED STATES OF AMERICA, } *sct:*
Eastern District of Pennsylvania,

I, Samuel Bell, clerk of the circuit court of the United States of America for the eastern district of Pennsylvania, in the third cir-

cuit, do hereby certify the foregoing to be a true and faithful copy of the original stipulations as to testimony, &c., in the case of James Flower *et al.*, complainants, and Richard Wood *et al.*, defendants, No. 2, April sess., 1884, on file and now remaining among the records of the said court in my office.

In testimony whereof I have hereunto subscribed my name and affixed the seal of the said court, at Philadelphia, this twenty-fourth day of July, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of these United States the one hundred and ninth.

[SEAL.] SAMUEL BELL,
Clerk of C. C.

Endorsed: 2872. No. 2. April sess., 1884. C. C. U. S., E. D. of Pa. Flower *et al. vs.* Wood *et al.* Certified copy of stipulation. Filed July 29th, 1884. Jno. Graves, dep'y clerk.

91 *Record, Containing Depositions and Exhibits, with Index.*

Circuit Court of the United States, Eastern District of Michigan.
In Equity.

JAMES FLOWER *et al. vs.* THE CITY OF DETROIT *et al.*

92–96 (Index omitted in printing.)

97 & 98 PLAINTIFFS' EXHIBITS.

Belonging to testimony taken before Special Examiner Harsha at Detroit February 28 to March 11.

EXHIBIT "BAILEY'S ORIGINAL PATENT."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted T. R. Bailey, Jr., March 10th, 1868, number 75344, for improvement in hydrants.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 19th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[SEAL.] E. M. MARBLE,
Commissioner.

99 No. 75344. (2–155.)

THE UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these letters patent shall come:

Whereas T. R. Bailey, Jr., of Lockport, New York, has alleged that he has invented a new and useful improvement in hydrants, and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said T. R. Bailey, Jr., his executors, administrators, or assigns, for a term of seventeen years from the tenth day of March, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this tenth day of March, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-second.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
[SEAL.]
A. M. STOUT,
Acting Commissioner of Patents.

(Here follows diagram marked p. 100.)

(2087–5 M.)

101 & 102 UNITED STATES PATENT OFFICE.

T. R. BAILEY, JR., of Lockport, New York.

Improvement in Hydrants.

Specification forming part of Letters Patent No. 75344, dated March 10, 1868.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the county of Niagara and State of New York, have invented a new and improved hydrant fire-plug; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification

T. R. Bailey Jr.
Hydrant.

No 75344 Patented Mar. 10, 1868

No 494
Flower et al.
v.
City of Detroit
et al
p. 100

Fig. 2.

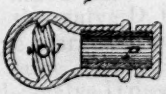
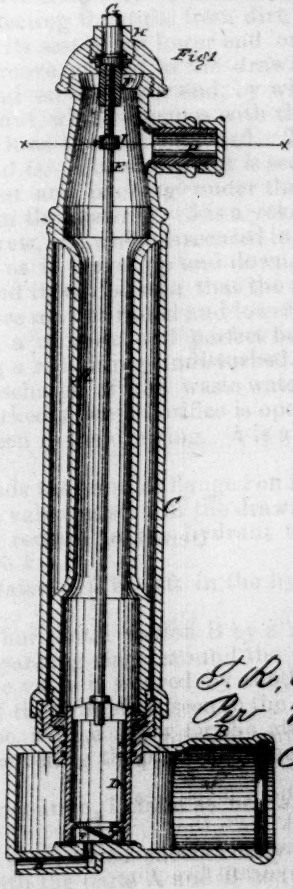
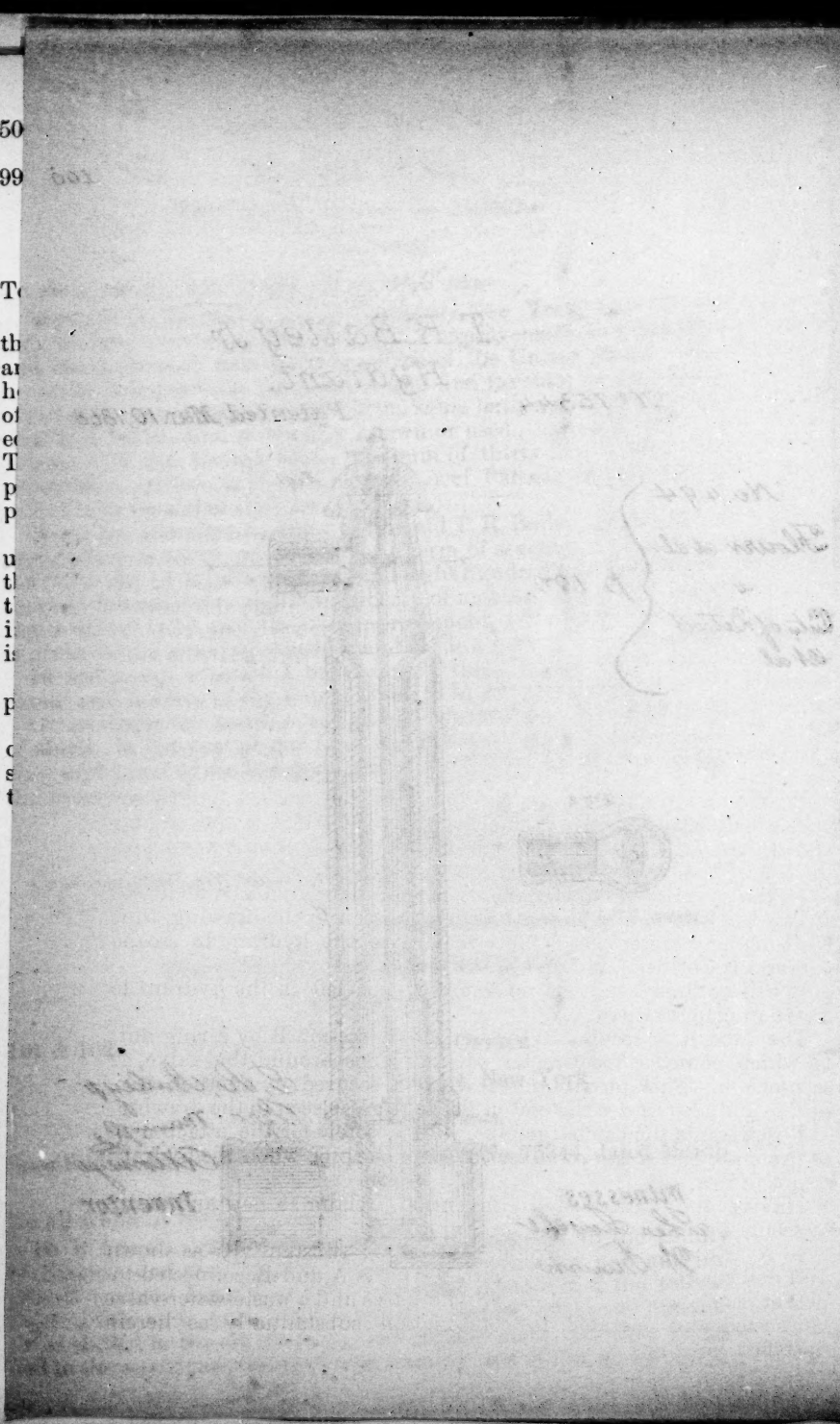


Fig. 1



T. R. Bailey Jr
Per Munn & Co
Attorneys
Inventor

Witnesses
Chas Fusche
W Erwin



This invention relates to a new and improved method of constructing fire plugs or hydrants; and the invention consists in operating a cylinder-valve in a suitable case, and in the arrangement and combination of parts connected therewith, as hereinafter described.

Figure 1 represents a longitudinal central section of the hydrant, showing the parts of which it is composed and the manner of their arrangement. Fig. 2 is a cross-section of Fig. 1 through the line *x x*. Similar letters of reference indicate corresponding parts.

A represents the hydrant-tube, from which the water is discharged. B is the horizontal section, which is connected with the "water-main," and which forms the valve-chamber. C is a loose casing around the hydrant-tube, for protecting the tube from dirt, &c. D is the cylinder-valve, which has its seat at its lower end on elastic or leather packing secured in a groove, as seen in the drawing at *a*. E is a rod, having a screw-thread on its upper end, by which the valve is operated. F is a sleeve-nut, which engages with the screw on the rod, raising and lowering it as the nut is turned. This nut is turned by a wrench on the head G. The sleeve-nut is secured in the cap of the hydrant by a collar and packing under the hollow cylinder stuffing-box H, as seen in the drawing. J is a yoke, which is attached to the rod E by a set-screw, and which is secured in the tube A, and prevented from turning, as it moves up and down, by projecting lugs, as seen in Fig. 2; and it will be seen that the arrangement is such that the rod and valve may be raised and lowered without being rotated. This secures a uniform and perfect bearing of the valve on its seat, the packing *a* remaining undisturbed.

Provision is made for the discharge of the waste water by an orifice beneath the valve D, marked *f*, which orifice is opened and closed by a valve marked *g*, as seen in the drawing. *h* is a wing on the top of this valve.

As the cylinder-valve D descends the annular flange *i* on its inside strikes the wing *h* and raises the valve, as seen in the drawing, thus allowing any water which may remain in the hydrant to escape through the orifice *f* and aperture *k*.

It will be thus seen that no water will be left in the hydrant to freeze in cold weather.

The tube A is secured to the horizontal section B by a ring-nut, *m*, which contains recesses for packing-rings around the valve, as seen at *n n*. Packing around the valve is secured by another ring-nut, *o*, and also under the end of the tube A, as seen in the drawing.

P represents the discharge-pipe, with a screw for the attachment of the hose, and a cap-piece for covering the pipe when the hydrant is not in use.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. A hydrant or water-plug, constructed substantially as shown and described—that is to say, with the parts A and B connected together, as shown, and with a cylinder-valve and a waste-water valve connected and operated in combination substantially as herein specified.

2. The arrangement of the parts A B, valve D, case C, and stuffing-box H, as herein described, for the purpose specified.

T. R. BAILEY, JR.

Witnesses:
GEO. W. PERRIGO.
L. H. HILL.

103 "EXHIBIT BAILEY'S REISSUE."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted Thomas R. Bailey, Jr., March 14th, 1876, number 6990, for improvement in hydrants.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 19th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[SEAL.] E. M. MARBLE,
Commissioner.

104 No. 6990, Reissue. (2–155.)

UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these presents shall come:

Whereas Thomas R. Bailey, Jr., of Lockport, New York, has presented to the Commissioner of Patents a petition praying for the reissue of letters patent for an alleged new and useful improvement in hydrants (for which letters patent were issued to him, dated March 10, 1858, which letters have been surrendered, the same have been canceled, and new letters ordered to issue to him on an amended specification), a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas upon due examination made the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Thomas R. Bailey, Jr., his heirs or assigns, for the term of seventeen years from the tenth day of March, one thousand eight hundred and sixty-eight, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In witness whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this fourteenth day of March, in the year of our Lord one thousand eight hundred and seventy-six, and of the Independence of the United States of America the one hundredth.

Z. CHANDLER,
Secretary of the Interior.

Countersigned:
[SEAL.] R. H. DUELL,
Commissioner of Patents.

105 UNITED STATES PATENT OFFICE.

THOMAS R. BAILEY, JR., of Lockport, New York.

Improvement in Hydrants.

Specification forming part of Letters Patent No. 75344, dated March 10, 1868; reissue No. 6990, dated March 14, 1876; application filed February 17, 1876.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the county of Niagara and State of New York, have invented a new and improved hydrant fire-plug; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention relates to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification.

This invention relates to improvements in the construction of fire plugs or hydrants.

In the drawing, Figure 1 represents a longitudinal central section of a hydrant according to my invention; Fig. 2, a cross-section of the same through lines *x x* of Fig. 1.

My invention consists in the following parts and combinations, as hereinafter specified and claimed, wherein A represents the hydrant-tube from which water is discharged. B is the horizontal section which is connected with the water-main, and which may form the valve-chamber. C is a loose movable casing around the hydrant-tube. D is the cylinder-valve, having its seat at its lower end, upon suitable elastic packing secured in a groove, as shown at *a*. E is a rod having a screw-thread on its upper end, by which the valve is operated. F is a sleeve-nut engaged with the screw-nut on the rod E′, lifting and lowering said rod as the nut is turned one way or another. This nut is turned by a wrench or crank or other suitable device on the head G. The sleeve-nut is screwed in the cap of the hydrant by a collar and packing, under the hollow cylinder stuffing-box H. J is a yoke which is attached to the rod E by a set-screw or its equivalent, and it is screwed in the tube A, and prevented from turning as it moves up and down by projecting lugs, as shown in detail at Fig. 2.

It will be noticed that the arrangement is such that the rod and valve may be raised and lowered without being rotated, thus securing a uniform and perfect bearing of the valve on its seat, the packing *a* remaining undisturbed.

Provision is made for the discharge of the waste water by an orifice, *f*, beneath the valve *d*, which orifice is opened and closed by a valve, *g*. A wing, *h*, is provided upon the top of this valve. As the cylinder-valve D descends the annular flange *i* on its inside striking the wing *h* raises the valve, as shown in the drawing, and allows any water which may remain in the dydrant to escape down through the orifice *f* and aperture K, thus preventing any retention of water above the freezing level.

The tube A′ is secured to the horizontal section B by a ring-nut, *m*, which contains recesses for packing-rings around the valve, as shown at *n*. Packing about the valve is also secured by another ring-nut, *o*, and also under the end of the tube A, as shown in the drawings.

P represents the discharge-pipe, with a screw for the attachment of the base, and a cap-piece for covering the pipe when the hydrant is not in use.

It will be observed that the casing C loosely rests upon the main B, or upon a branch projecting upward from the same. This casing extends upward, enveloping the main portion of the water-pipe A, at least that portion which is subterranean. Said casing extends upwards and fits loosely about the plug or hydrant at the portion A′. Above the upper terminus of the casing C is provided the bead *a* upon the hydrant proper. Sufficient space is left between the bead *a* and the upper terminus of the casing C to permit of sufficient up-and-down play of the casing C, for the purpose which will hereafter more fuly appear. This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base.

The main function of the casing C is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug. This process of freezing causes the surrounding earth, by its expansion, to lift or upheave, and thus be liable to derange the hydrant or plug. This upheaval or movement is received by the casing C, which, by its capability of sliding loosely up and down, will accommodate the upheaval of the earth above mentioned without any liability to derange the plug or hydrant. This is the chief function of the casing C, although it likewise serves the purpose of protection to the water-pipe A.

What I claim is—

1. In combination with a hydrant or fire-plug, a detached and surrounding casing C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown.

2. In combination with a hydrant or fire-plug pipe, A, the supply-

106

T. R. BAILEY, Jr.

HYDRANTS.

No. 6,990. Reissued March 14, 1876.

No 494.
Flower et al.
v
City of Detroit
et al

p 106

Fig 1 –

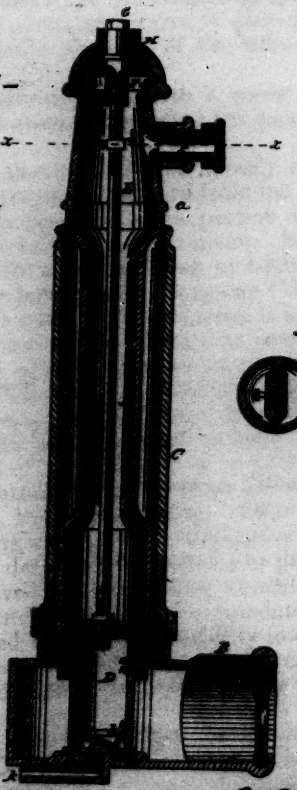


Fig 2 –

WITNESSES
E. S. Sellingham,
Albert A. Bright

INVENTOR
T. R. Bailey Jr
By Dyrett & Coppett Attorneys

pipe B, and cylinder-valve and waste-valve, connected and operated substantially as herein shown and described.

3. The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown.

THOMAS R. BAILEY, JR.

Witnesses:
I. R. COMPTON.
E. WEST.

(Here follows diagram marked p. 106.)

107 & 108 "EXHIBIT GOSS-BAILEY LETTER."

E. H. Avery, president; A. H. Goss, sec'y and treas.

OFFICE OF THE AUBURN WATER-WORKS COMPANY,
AUBURN, N. Y., *Sept.* 24, 1867.

T. R. Bailey & Sons, Lockport:

I have examined a model of a hydrant you propose to construct. It seemed to me to be a good article for the purpose — it was constructed, and to obviate some objections to all hydrants I have ever examined, and trust it will so prove on trial, as it would be a matter of importance to all water-works companies.

Very truly yours, A. H. GOSS.

109 "EXHIBIT VAIL'S CERTIFICATE."

(Cut.)

Hodge Opera House.

OFFICE OF THE CITY CLERK OF THE
CITY OF LOCKPORT, *May* 1, 1876.

From the proceedings of the common council of the city of Lockport, at a meeting held Sept. 2, 1867—

Proposal of T. R. Bailey's Sons for water-pipe and hydrants of their manufacture in Transit and Buffalo streets; amount, $2,030.00.

Also, from the proceedings of said council, held on Nov. 11th, 1867—

On motion of Alderman Moody, permission was granted to the Holly Manufacturing Company and to T. R. Bailey's Sons to put in one of their new patent hydrants on the line of the Buffalo and Transit streets water-pipe extension.

I certify the foregoing is a correct copy of the proceedings from the records in the clerk's office of the city of Lockport of the dates above mentioned.

[SEAL.] J. W. VAIL,
City Clerk.

110 & 111 "EXHIBIT BAILEY'S ASSIGNMENT."

Sale of Interest in Patent Right.

Whereas I, Thomas R. Bailey, of Lockport, in the county of Niagara and State of New York, did obtain letters patent of the United States for certain improvements in hydrants, which letters patent were dated the tenth day of March, A. D. 1868, and numbered 75344, which said letters patent were reissued on the fourteenth day of March, 1876, and numbered 6990;

And whereas James Flower, George Flower, and Thomas Flower, of the city of Detroit, county of Wayne, and State of Michigan, are desirous of acquiring an interest therein:

Now, therefore, this indenture witnesseth: That for and in consideration of the sum of five dollars to me in hand paid, the receipt of which is hereby acknowledged, I have assigned, sold, and set over, and do hereby assign, sell, and set over, unto the said James, George, and Thomas Flower all the right, title, and interest which I have in the said invention, as secured to me by said letters patent, for, to, and in the entire of the United States and the Territories thereof, the same to be held and enjoyed by the said James, George, and Thomas Flower for their own use and behoof, and for the use and behoof of their legal representatives, to the full end of the term for which said letters patent are granted as fully and entirely as the same would have been held and enjoyed by me had this assignment and sale not been made.

In testimony whereof I hereunto set my hand and seal this thirtieth day of March, A. D. 1876.

THOMAS R. BAILEY. [L. S.]

Sealed and delivered in presence of—
CHAS. J. HUNT.

Received for record April 3d, 1876, and recorded in Liber I 20, page 222, of transfers of patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.] W. A. DOOLITTLE,
Acting Commissioner.

(Here follow diagrams marked pp. 112, 114, and 116.)

117 & 118 "EXHIBIT BAILEY-FLOWER LETTER No. 1.

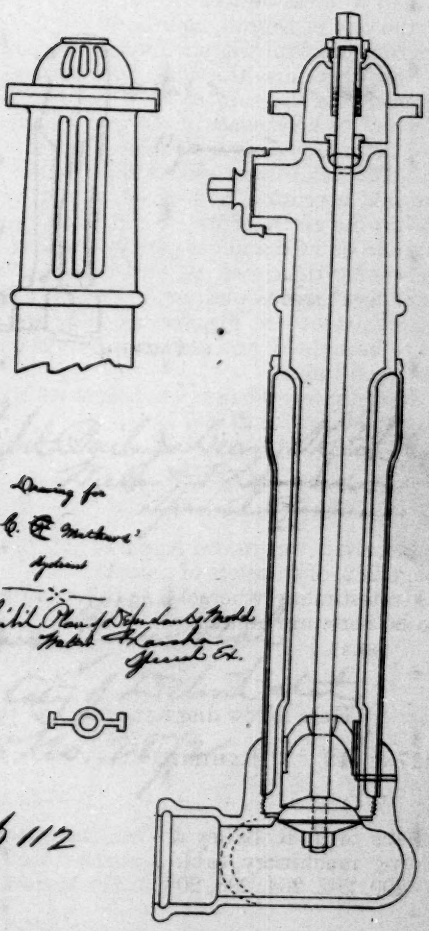
(Cut.)

Office of T. R. Bailey & Vail, manufacturers of wood & iron working machinery, cable & sheaves for transmitting power, &c., 198, 200, 202, 204, 206, 208, & 210 Market St.

LOCKPORT, N. Y., *Nov.* 3*d*, 1875.

James Flower & Bro., Detroit, Mich.

GENTS: When I was in Saginaw a few days ago I was told that Mr. Mathews, of Phila., had forbid the city of Saginaw, as well as

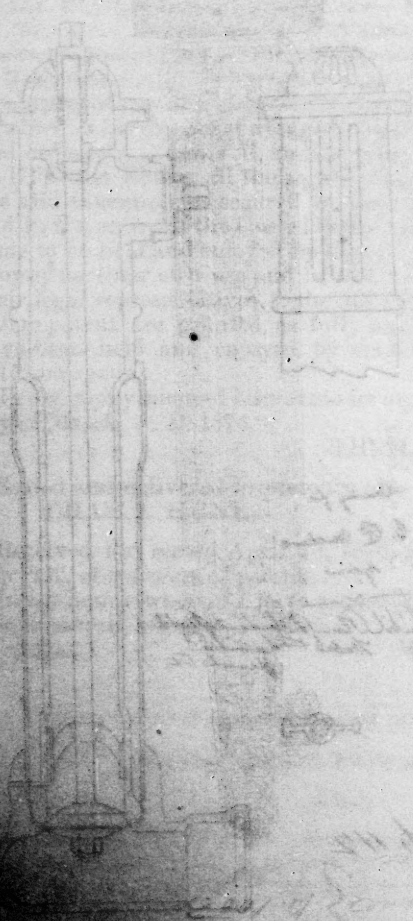


Drawing for
S R C. E. Mathews'
Hydrant

Exhibit Plan of Defendant's Model
Walter Harsha
Speech Ex.

No 494
Flower et al
v
City of Detroit
et al

p 112



December, SUNDAY, 3, 1865.

Hydrum^n

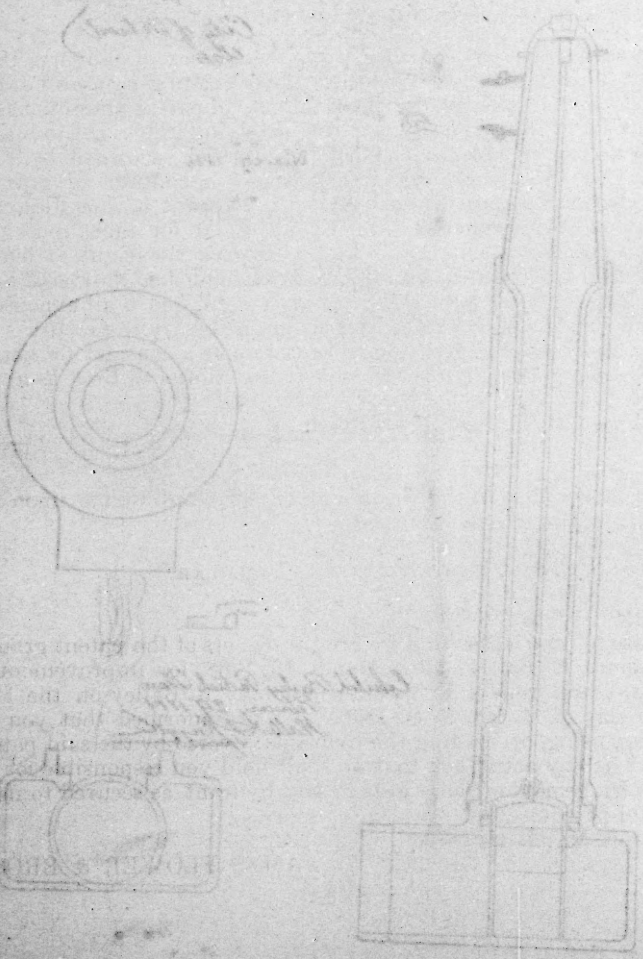
No. 494.
Flower et al.
v.
City of Detroit
et al.
} p. 114

MONDAY, 4.

Exhibit Bailey's Diary Sketch
Walter F. Darcha
Special Examiner

TUESDAY 5.

James Flower et al
v
The City of Detroit et al
No. 2872.



some other cities, not to use any more of your hydrants; if they did he should sue. Now, he has no patent on a loose case. I have a hydrant with a loose case patented in 1868; if you will look up this matter and satisfy yourselves that my claim is good I will sell to you, or go in with you to make Mr. Mathews stop his noise. Let me hear from you. My pat. is dated March 10th, 1868.

Resp. yours, T. R. BAILEY.

Answered Nov. 5, 1875.

119 "EXHIBIT BAILEY-FLOWER CONTRACT."

This agreement, entered into this seventh day of January, 1876, between T. R. Bailey, of Lockport, N. Y., of the first part, and James Flower & Bros., of Detroit, Mich., of the second part, witnesseth: That whereas James Flower & Bros. desire to obtain the right to manufacture a certain hydrant, the patent of which is owned by T. R. Bailey, now I, T. R. Bailey, agree to make a contract or grant a license to manufacture exclusively such hydrant to Jas. Flower & Bros. upon the payment to me of one dollar for each and every hydrant made by them, and I am to reserve the right to manufacture said hydrants myself if I so wish, and Jas. Flower & Bros. are to furnish funds for a reissue of my patent, free of all expense to me, and conduct such proceedings as are necessary to procure such reissue, and upon the granting of such reissue a contract or license will be entered into by myself and James Flower & Bros. as above stated.

Lockport, N. Y., Jan. 7th, 1876.

T. R. BAILEY.

Any informality in the above will be corrected by me upon the granting of the reissue.

120 "EXHIBIT FLOWER CIRCULAR."

To whom it may concern:

Please to take notice that we are the owners of the patent granted to Thomas R. Bailey, dated March 10, 1868, for improvement in hydrants, and reissue to the said Thomas R. Bailey on the fourteenth day of March, A. D. 1876. We are informed that you are making, using, or vending the hydrants covered by the said patent, and we hereby notify you that we shall hold you responsible for the said infringement of our rights to said hydrant as secured to us by the said patent.

Detroit, March 31, 1876.

JAMES FLOWER & BROS.

121 "EXHIBIT R. D. WOOD & CO.'S. CIRCULAR."

(Cut.)

R. D. Wood & Co., manufacturers of cast-iron water and gas pipes, lamp-posts, jonval-turbines, eddy-valves, heavy machinery, and Mathews' patent fire-hydrants, Philadelphia.
Foundries: Milleville, Florence, N. J.

Our attention having been called to a circular issued by Messrs. Flowers & Bros., of Detroit, evidently intended particularly for our customers, in which they state that they have become owners of a patent for improvement in fire-plugs, issued to Thomas R. Bailey, of Lockport, N. Y., cautioning parties against the use of such improvements, we deem it necessary to state the facts in the case, and on our part to caution all parties against being mislead and incurring liability in consequence of the above circular.

Mr. Bailey took his plans (with exception of what he called a cylinder-value, and which proved to be worthless) from the Niagara Manufacturing Company of Lockport, New York, then owning and manufacturing the Mathews patent fire-hydrant. In his first application for patent his claim was confined to the above valve, and to the combination of parts. In his application for reissue he swore to what he knew (we have no doubt) to be a falsehood in claiming invention of a frost-jacket, he having seen hundreds of them made by the Niagara Manufacturing Company previous to the time he had any idea of getting up a hydrant.

We intend to take proceedings to have the patent set aside as void and fraudulently obtained, and in the meantime hold ourselves ready to defend any action brought against our customers by parties claiming rights under patents conflicting in any way with the Mathews patent.

Philadelphia, April 17, 1876.

Very respectfully, R. D. WOOD & CO.

122 "EXHIBIT LEGGETT-FLOWER LETTER."

M. D. Leggett. L. L. Leggett. W. W. Leggett.

M. D. Leggett & Co., counsellors at-law in patent causes, Standard block.

CLEVELAND, O., 4 *Jan.*, 1876.

Messrs. J. Flower & Bros.

GENTLEMEN: We are just in receipt of a letter from our Washington office as to the model in the Bailey, Jr., patent 75344. The model, as I suspected, shows abundant room between the top of the jacket and the bead on the stock to admit of the motion caused by the frost. I have no doubt but that Bailey, Jr., may reissue his patent and fully claim and cover this feature, and thereby render null and voidable the Race & Mathews patent.

Very truly, &c., M. D. LEGGETT.

123 "EXHIBIT RACE & MATHEWS' APPLICATION OF OCT. 29, 1868."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper, contents, and drawing in the matter of the letters patent granted to Washburn Race and S. R. C. Mathews, assignors to S. R. C. Mathews, November 16th, 1869, number 96959, for improvement in hydrants.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 22d day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[SEAL.] E. M. MARBLE,
Commissioner.

Model 1, dr. $15, C'r't. (in blue pencil).

Petition.

To the Commissioner of Patents:

Your petitioners pray that letters patent may be granted to them for the invention set forth in the annexed specification.

124 And they hereby authorize J. Fraser & Co., of Buffalo and Rochester, N. Y., and their associate attorney at Washington, D. C., to act as their attorneys in presenting and prosecuting this application, with full power to alter and amend the drawings, specification, and claims, and to receive the patent when granted; and also to prosecute or defend in any interference which may be declared before or after the issue of the patent, and to perform whatsoever acts may be lawfully required in the premises as fully as they might do if personally present.

Dated at Lockport, N. Y., October 15th, 1868.

Conveyance. 50. United States. J. F. & Co. Oct. 24, 1868. inter. revenue. 50. Fifty cents.

WASHBURN RACE.
S. R. S. MATHEWS.

Specification.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Lockport, in the county of Niagara and State of New York, have invented a certain new and useful improvement in hydrants; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification.

Fig. 1 is a sectional elevation of our improved hydrant; Fig. 2, a horizontal cross-section.

Like letters of reference indicate corresponding parts in both figures.

We obtained a patent dated January 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and embedded in the ground.

125 Our present invention is an improvement upon that, and consists in so forming and connecting the loose case that it extends above the surface of the ground and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings A indicates the hydrant, the part *a* resting above ground and the stock *b* being imbedded.

The loose case or jacket B which surrounds the stock is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders, *g g*, which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply inclosed. The lower end of the case preferably shuts into a flange, *h*, of the main elbow connection C, and it may be centered to prevent axial turning by a sleeve, *c*, which rests in a groove, *d*.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case and can in nowise affect the hydrant. The heaving by frost is a constant source of trouble and expense in other hydrants by causing the elbows at the bottom connecting with the "main" to break; also throwing the hydrant itself out of position. While we remedy this difficulty by giving the desired end play, we at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

Another great advantage of our invention is that the hy-

126 drant can be set at various heights above sidewalks, accommodating them to the different gradings without loosing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention and desire to secure by letters

patent is the detached case B, so combined and arranged with hydrant A as to have an end play or vertical motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to place without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
JOHN VAN HORN.
ELLSWORTH ELY.

Oath.

CITY OF LOCKPORT, *County of Niagara, State of New York:*

On this 15th day of October, 1868, before me, the subscriber, a justice of the peace, personally appeared Washburn Race and S. R. C. Mathews and made solemn oath that they verily believe themselves to be the original and first inventors of an improvement in hydrants, as within described, and that they do not know or believe that the same was ever before known or used, and that they are citizens of the United States.

A. TORRENCE,
Justice of the Peace.

127 18.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 17, 1868.

W. Race and S. R. C. Mathews, care J. Frazer & Co., Rochester, N. Y.

SIRS: Please find below a communication from the examiner in relation to your application for a hydrant, filed Oct 29, 1868.

Very respectfully,
——— ———,
Commissioner.

EXAMINER'S ROOM No. 96.

A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention.

386 T. B. CONNOLLY, *Examiner.*

Memorandum of fee paid at U. S. Patent Office.
C'r't., $20 (in blue pencil).

Inventor,
Race & Mathews.
Invention,
Hydrant.
Date of payment,
Nov. 5th, 1868.

Final fee,
$20.
Certificate.
Solicitor,
J. Fraser & Co.

Patent to issue to assignees; ass't filed Nov. 5, '69 (in blue pencil).

128 $\frac{2}{3}\frac{9}{}$ 1868.

No. 96959.
Washburn Race and S. R. C. Mathews, assor's to S. R. C. Mathews,
H
Of Lockport, county of Niagara, State of New York.
Hydrants.
Rec'd Oct. 29, 1868.
Petition, " " "
Affidavit, " " "
Specification, " " "
Drawing, " " "
Model, " " "
Cert. dep., $15, Oct. 29, 1868.
Cash.
1 add'l fee cert., $20, Nov. 5, 1869.
" " cash.
Examined Oct. 21, '69, Connolly.
2 issue Grinnell, Oct. 21, '69.
3 patented Nov. 16, 1869.
Recorded vol. —, page —.
Circular, Oct. 22, 1869.

J. FRASER & CO.,
Rochester, N. Y.

1868.

1868.

Ex'd: H. M. H. Dec. 17, 1868. Rejected.
E. A. M.
Imp't in hydrants.

MILLER.

Sp'c. 50c. (in blue pencil).

1868.

20159, D 183 (in red ink).

129 UNITED STATES PATENT OFFICE.

WASHBURN RACE and S. R. C. MATHEWS, of Lockport, New York, assignors to S. R. C. Mathews.

Improvement in Hydrants.

Specification forming part of Letters Patent No. 96959, dated November 16, 1869.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Lockport, in the county of Niagara and State of New York, have invented a certain new and useful improvement in hydrants; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification.

Figure 1 is a sectional elevation of our improved hydrant; Fig. 2, a horizontal cross-section.

Like letters of reference indicate corresponding parts in both figures.

We obtained a patent, dated January 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and imbedded in the ground.

Our present invention is an improvement upon that, and consists in so forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings, A indicates the hydrant, the part *a* resting above ground and the stock *b* being imbedded.

The loose case or jacket B which surrounds the stock is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders, *g g*, which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply inclosed. The lower end of the case preferably shuts into a flange, *h*, of the main elbow-connection C, and it may be centered to prevent axial turning by a sleve, *e*, which rests in a groove, *d*.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant. The heaving by frost is a constant source of trouble and expense in other hydrants by causing the elbows at the bottom connecting with the "main" to break; also throwing the hydrant itself out of position. While we remedy this difficulty by giving the desired end play, we at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

Another great advantage of our invention is that the hydrant can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention, and desire to secure by letters patent, is—

The detached case B, so combined and arranged with hydrant A as to have an end play or verticle motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
JOHN VAN HORN.
ELLSWORTH ELY.

(Here follow diagrams marked pp. 130–132.)

133–135. "EXHIBIT STETSON LETTER."

OFFICE OF CLERK OF U. S. CIRCUIT COURT,
DISTRICT OF MASSACHUSETTS,
BOSTON, *Jan.* 31*st*, 1878.

James Flower & Bros., Detroit, Mich.:

Your letter of the 29th inst. rec'd, in which you inquire if decision has been given in the case of Boston Machine Co. *vs.* Mathews. The inquiry relates to the case, I presume, of Mathews *vs.* Boston Machine Co. There is no such case on the docket of this court as the first named. The decision in the last-named case was rendered Oct. 5, 1877, and it was then decreed that the bill of complaint therein be dismissed with costs for defendants. The complainant, Mathews, thereupon claimed an appeal, and the cause has gone up to the U. S. Supreme Court, where it is now pending.

Yours resp'f'y,
J. G. STETSON,
Per A. H. T.

(Here follow diagrams marked pp. 136–139.)

W. Race & S. R. C. Matthews
Hydrants
No. 96959. Patented Nov. 16. 1869.

No. 494.
Flower et al
v.
City of Detroit
et al.
p. 130

Fig. 1.

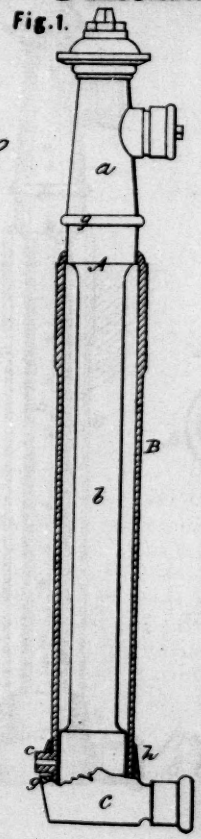


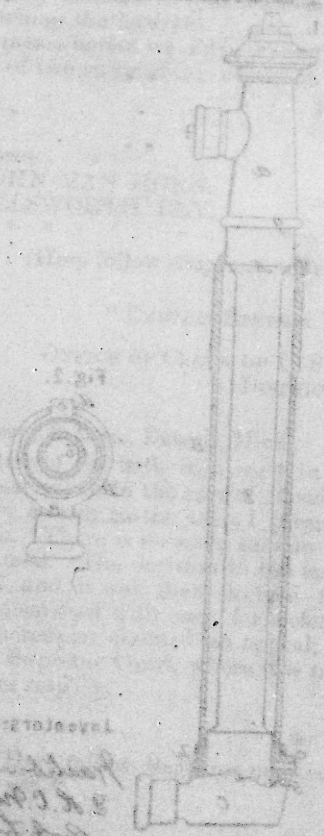
Fig. 2.

Witnesses:

J. R. Dale
E. A. Davis

Inventors:

Washburn Race
S. R. C. Mathews
By J. Fraser & Co
Attys.



Race & Mathews.

Hydrant.

No. 96,959. Patented Nov. 16. 1869.

No. 494.
Flower et al.
v.
City of Detroit et al.
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Fig. 1.

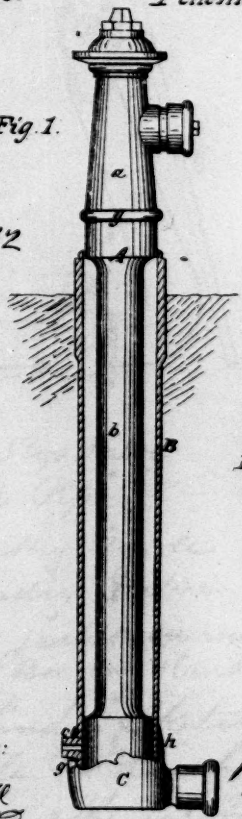
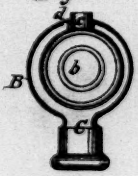
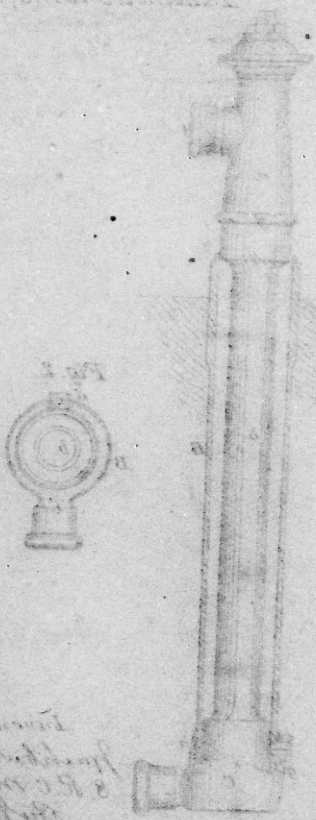


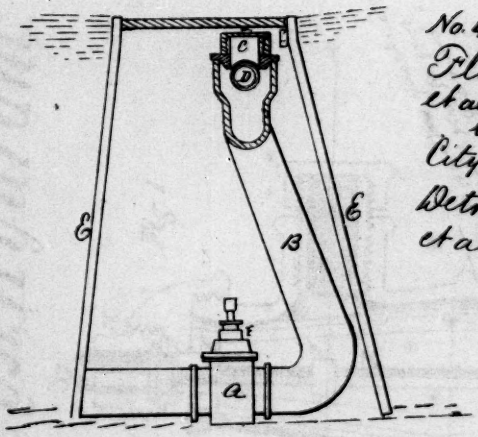
Fig. 2.



Witnesses:
J. R. D'Valle
[illegible]

Inventors:
Washburn Race.
& R. C. Mathews.
By J. Fraser Vice
Attys.



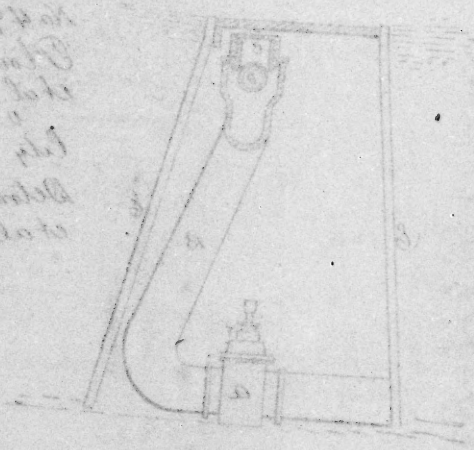


No. 494
Flower
et al.
v.
City of
Detroit
et al

p. 136

a Main Stop Valve
B Stand Pipe
C Connecting Nozzle
D Secondry Valve
E Wooden jacket surrounding the whole
F Stuffing Box and Gland -

Exhibit - Pendry Sketch
Wilson Flaisha
Special Examiner



T. R. Bailey Jr. Hydrant.

No. 494
Flowers et al.
v.
City of Detroit
et al

p. 139

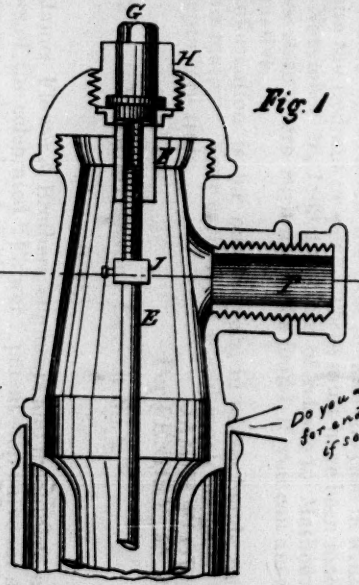
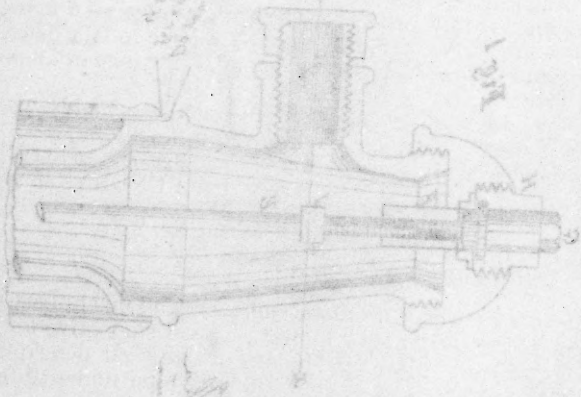


Fig. 1

Exhibit Pendry Tracing
Walter Martha
Special Examiner

Do you allow space here for end play for frost if so How much?



140 "EXHIBIT PENDRY LETTER No. 1."

(Cut.)

Office of James Flower & Brothers, engineers and machinists, manufacturers of the celebrated "Flower" patent stop-valve, for steam, water, or gas; also plumbers' brass work, all descriptions of cocks, globe-valves, &c.; dealers in iron pipe and fittings, cor. Brush and Woodbridge streets.

DETROIT, MICH., *Dec. 17th*, 1875.

T. R. Bailey, Jr., Esq., Lockport, N. Y.

DEAR SIR: Referring to the enclosed tracing, will you please inform us if you ever constructed any of your "hydrants" allowing end play between top of frost case and bead on stock of hydrant, as shown on drawing, to allow the frost to raise the case in winter and not to raise the hydrant proper? These must have been made previous to November 16, 1869, the time of reissue to Mathews, and also please state where such are to be found if you can answer in the affirmative.

This information is for our lawyers, in whose hands we have placed this matter. Your early reply would much oblige—

Yours very truly, JAMES FLOWER,
Per PENDRY, *M. E.*

141 & 142 "EXHIBIT PENDRY LETTER No. 2."

(Cut.)

Office of James Flower & Brothers, engineers and machinists, manufacturers of the celebrated "Flower" patent stop-valve for steam, water, or gas; also plumbers' brass work and all descriptions of cocks, globe-valves, &c.; dealers in iron pipe and fittings, cor. Brush and Woodbridge streets.

DETROIT, MICH., *Dec. 20th*, 1875.

T. R. Bailey, Esq., Lockport, N. Y.

DEAR SIR: Your letter of the 18th inst. came to hand this morning. I have sent it to our attorney. I am sorry to have kept your patent so long, but the reason of so doing is that our attorney is in Washington at present (he is pleading the patent stove case); he will give us his opinion in a few days. I intend to send it to others as well to get some three or four of the best lawyers' opinions on it if you can spare your papers long enough for me to do so.

We have not made many hydrants yet, as Mathews notifies all cities and coporations that they will be prosecuted for infringement if they should use my or any other hydrant. The city of Detroit has put in over one hundred hydrants of Mathews' make the present summer, and we cannot get a chance to put in one, as they are in fear of being prosecuted.

Our principal work has been making "water" and "steam" valves; we make them from 5 oz. to 7 tons one-fourth each; we are making five of the larges at present.

In case we should come to the conclusion to purchase your hydrant for the U. S., what would your price be to me? Although the firm is James Flower & Bros., the patents are all owned by me individually, and any expenses are borne by me.

Yours truly, JAMES FLOWER,
Per W. P.

143 & 144 In the Circuit Court of the United States for the Eastern District of Michigan. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, FIRE COMMISSION OF the City of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } No. 2872.

Testimony on the part of plaintiffs taken before Walter S. Harsha, special examiner, at Detroit, Michigan.

Mr. E. J. Hill appears for complainants; Mr. Henry M. Duffield, for defendants; Mr. George L. Roberts, of counsel for defendants.

THOMAS R. BAILEY, a witness produced, sworn, and examined on behalf of the plaintiffs, testified as follows:

1 Q. What is your name, age, occupation, and residence?
145 A. Thomas R. Bailey; age, 49; occupation, machinist; residence, Owosso, Shiawassee Co., Mich.

2 Q. How long have you resided at Owosso and where did you reside before that time?

A. I resided at Owosso about one year; at Lockport, N. Y., previous to that, about 37 years continuously.

3 Q. How long have you been a machinist?

A. About 30 years.

4 Q. In the year 1867 were you in business for yourself or at work for other parties?

A. I was in business for myself in connection with my brother under the firm name of T. R. Bailey's Sons. My father's name was Thomas R. Bailey. I was then known as Thomas R. Bailey, Jr.

By Mr. HILL: Plaintiffs here offer in evidence a certified copy from the records of the U. S. Patent Office of letters patent granted to T. R. Bailey, Jr., March 10, 1868, No. 75344, for improvement in hydrants, certified copy dated October 19th, 1883, marked "Exhibit Bailey's Original Patent."

5 Q. Please examine this patent and state whether you are the inventor therein named.

A. I am.

6 Q. Through whom did you make the application for the patent?

A. Munn & Co., of New York City.

7 Q. When did you first send your specifications in the case to Munn & Co.?

A. September 7, 1867.

8 Q. How do you fix that date?

A. From a copy of a letter that I took from the letter-book of T. R. Bailey's Sons.

9 Q. State whether or not a model was sent at that time to Munn & Co.?

A. I think the model was sent before that time.

146 10 Q. It was sent by you to them, was it?

A. Yes, sir.

11 Q. How long before?

A. Well, I should think probably about a month.

12 Q. When did you construct the model?

A. It was during the winter of '66 and '67 or spring of '67.

13 Q. How many models did you construct like the one sent to Munn & Co.?

A. Two.

14 Q. What did you do with the other model?

A. I kept it about the shop and the house, and took it with me sometimes when I was away from home, and showed it to parties who were interested in hydrants. I finally gave it to Mr. James Flower.

15 Q. Please examine the exhibit now shown you and state what the same is.

A. It is the model of a hydrant—the same as the one I sent to Munn & Co.—and is the one which I gave to James Flower.

16 Q. What difference, if any, is there between this exhibit, which I will mark "Exhibit Bailey's Original Model," and offer in evidence, and the one which you sent to Munn & Co.?

(Objected to as inadmissible, because not the best evidence of the construction of the model sent to Munn & Co.)

A. There is not any difference.

17 Q. How do you recognize this as one of the original models which you made?

A. Well, I recognize it by that name plate on it, which reads "T. R. Bailey, Jr., Lockport, N. Y., pat. apl'd for." Also from the general outline, from the milling on the cap and top, and the manner in which it is painted.

147 18 Q. When was the name plate placed on this exhibit? State as near as you can remember.

A. It was placed there at the time I made the model; some time in the spring of '67 or late in the winter previous.

19 Q. Please examine the drawing of the original patent 75344, and state what, if any, difference there is between the hydrant there represented and the model.

(Objected to as inadmissible and incompetent.)

A. The difference is, the drawing shows that the case rests against the bead on the body of the hydrant, or rather the bead on the body of the hydrant rests upon the case. The model shows that there is an end play of the case of about a quarter of an inch. I don't discover any other difference.

20 Q. When was your attention first called to this difference—when and by whom?

A. It was in the spring of '76, I think, in the city of Cleveland, and I think it was by Mr. James Flower.

21 Q. What is the case to which you refer for?

A. It was to facilitate the taking up of the hydrant in case of accident, to obviate any difficulties from the action of the frost upon the hydrant, and to allow the contraction and expansion of the body of the hydrant that might occur from any set joints—that is, if the hydrant and case were made all in one piece to hold it fast together, as hydrants were formerly made, thus saving the breaking of the stock of the hydrant. I think that is all.

22 Q. On discovering the difference between the drawing and the original patent, what, if anything, was done by you?

A. I made an application for a reissue.

23 Q. Through whom was that application made?

148 A. M. D. Leggett & Co., of Cleveland, Ohio.

By Mr. HILL: Complainants offer in evidence certified copy from the records of the U. S. Patent Office of the reissue letters patent granted Thomas R. Bailey, Jr., March 14, 1876, number 6990, for improvement in hydrants. Certified copy is dated October 19, 1883, marked "Exhibit Bailey's Reissue."

24 Q. You are the same person named in this exhibit and this is the reissue to which you refer?

A. I am, and it is.

25 Q. Please examine the paper which I now show you, and which I will offer in evidence, marked "Exhibit Goss-Bailey Letter," and state what the same is, and state to what the words therein contained, "model of a hydrant," refer.

A. This is a letter from A. H. Goss to T. R. Bailey & Sons, Lockport, dated Auburn, N. Y., Sept. 24, 1867, and refers to this model, "Exhibit Bailey's Original Model."

(Objected to, question and answer, as incompetent.)

26 Q. When and for whom was the first hydrant under your patent constructed?

A. The first hydrant that was made after the patent was issued was for James Fleming, of Lockport, N. Y., some time during the summer of 1868.

27 Q. How about one for the city of Lockport?

A. I made one for the city of Lockport, and it was put in on what was called the Transit street extension some time during the fall of 1867; this was done by the permission of the common council of the city.

By Mr. HILL: Certificate of J. W. Vail, city clerk, dated May 1, 1876, under seal of the city of Lockport, from the minutes of the proceedings of the common council of said city, at a meeting held
149 Sept. 2, 1867, marked "Exhibit Vail's Certificate," and also from the proceedings of said council of November 11, 1867, offered in evidence.

(Objected to as inadmissible and incompetent.)

28 Q. In this certificate, under date of Nov. 11, 1867, permission is given, among other things, to T. R. Bailey's Sons to put in one of their new patent hydrants on the line of the Buffalo & Transit streets water-pipe extension. State whether this refers to the hydrant which you put in for the city of Lockport.

(Same objection.)

A. It refers to the one we furnished. We did not put it in.

29 Q. How many hydrants did you manufacture prior to the application for a reissue under the patent of 75344?

A. I think there were six of them; I am not positive; five or six.

30 Q. State whether or not they were marked; and, if so, how.

A. They were marked "T. R. Bailey, Jr., patented March 10, 1868." I am not positive whether "Lockport, N. Y.," was on them or not. I think it was.

31 Q. State whether they were manufactured according to the model or the drawing.

A. They were manufactured according to the model, with one or two exceptions; this top was bolted on instead of screwed on, as the model is.

32 Q. State whether or not you were acquainted with one Samuel R. C. Mathews.

A. I was. I think my first acquaintance with Mr. Mathews was about 1864, at Lockport, N. Y., where he then resided. I knew him for some four or five years after that.

150 33 Q. State whether or not, after the issue of the patent in 1868, to you, No. 75344, you had any conversation with Mr. Mathews relative thereto; if yes, state when and where it occurred and what was said on that occasion, as near as you can remember.

(Objected to as immaterial and inadmissible.

A. I did. I couldn't give the time, but it was some months after the patent was issued. It was in an office used by Mr. Washburn Race. I think he used it as a draughting room, in the stone building occupied by Race & Mathews or the Niagara Manufacturing Co. I don't know the style of the firm at the time. Mr. Mathews asked me to put in a disclaimer on my patent. I think he said upon the case—the loose case. I told him that I should not do it; the patent was mine, and I proposed to keep it. I think that was about all that was said at the time.

34 Q. How do you fix the date of this conversation?

A. I fix it from the fact that the patent was issued in March, and it was some time after it was issued in that year.

35 Q. State whether or not at the time when you applied for this patent, in 1867, you were familiar with the devices used in the construction of hydrants to protect them from changes of temperature.

A. I was.

36 Q. How long had you been so?

A. Probably four or five years; I don't remember now.

37 Q. What were the devices then in use for that purpose?

A. The one they used in Buffalo was an octagon box around the hydrant set into the ground and filled with manure or other non-conducting substances. I think there were some in Chicago
150*a* of the same kind. Some in Chicago were protected with a brick wall around. These are the only ones I was familiar with—that is, outside of Mr. Mathews' old patent of 1858, I think it was.

Examination adjourned until 2 p. m.

At 2 o'clock p. m. examination resumed.

38 Q. You have spoken of a loose case upon the hydrant as having an end play; what is the purpose or use of this feature of the device?

A. It is to allow the case to raise as the frost expands the earth, or heaves it up, without interfering with the body or stock of the hydrant.

39 Q. You are accustomed to working from drawings, are you not?

A. Yes, sir.

40 Q. Please examine the drawing attached to the original patent 75344, and state whether, from such drawing, a hydrant could be made according to your invention.

(Objected to as inadmissible and incompetent.)

A. It could not, because the drawing shows that the case has no end play.

41 Q. Please examine the drawing accompanying your reissue number 6990, and state whether or not from that a hydrant could be constructed according to your invention.

(Same objection.)

A. It could be, because the drawing shows that the case has an end play.

42 Q. Why have you not manufactured more hydrants between the date of the letters patent and the date of the reissue according to this invention?

A. Because I lacked the money to put it in the market properly.

150*b* 43 Q. State whether or not you advertised it, or endeavored to put it in the market, and what steps you took to do so.

A. We advertised it in a catalogue we got out, and I think we advertised it in the Scientific American, but I am not positive about that.

By Mr. HILL: I produce an assignment dated March 30, 1876, from Thomas R. Bailey, recorded April 3, 1876, Liber I 20, page 222, of transfer of patents in the U. S. Patent Office, to James Flower,

George Flower, and Thomas Flower, marked "Exhibit Bailey's Assignment."

44 Q. Please examine this exhibit, and state whose signature and seal is appended thereto.

A. My own.

45 Q. Please state when that was delivered, if at all, to the plaintiffs in this suit.

A. March 30, 1876.

(For the purpose of saving the time and trouble of formal proof of the acts of the defendants complained of in this suit, it is admitted by Henry M. Duffield, Esq., on behalf of the defendants, that at some time between the date of the reissued patent sued upon and the date of filing the plaintiffs' bill the fire commission of the city of Detroit used on one of the principal streets in the city of Detroit a hydrant constructed substantially as represented by the model now produced and put in evidence, marked "Exhibit Model Defendants' Hydrant." And it is further admitted that the said hydrant so used was sold to the said fire commission for use in the city of Detroit by the firm of R. D. Wood & Co., of Philadelphia, Pennsylvania.)

151 46 Q. Please examine "Exhibit Model Defendants' Hydrant," and state whether or not, and, if so, how, the same infringes your letters patent.

A. The infringement is this loose case having an end play.

47 Q. In the specifications in both the original and the reissue letters patent to you three parts are described, namely, the hydrant tube A, the water-main or branch B, and the case C. State whether you find those parts in the defendants' model, and how they compare with the corresponding parts in your model.

A. I do. They are the same, except the enlargement of the case near the top, and at the bottom the case on my model sets over the outside, while the defendants' slips inside.

48 Q. In your original letters [patent] there is a claim for a hydrant constructed with the parts A and B connected together, as shown. The model shows that these parts are connected together by a loose casing around the hydrant tube. Please examine the defendants' model, and state whether or not the corresponding parts are thus connected.

(Objected to as inadmissible and incompetent, and especially as argumentative and dealing with a question which is one of law and not of fact.)

Question withdrawn.

49 Q. How are the parts A and B—that is to say, the hydrant tube and the branch of the water-main, connected together in your invention as shown by your model?

A. They are connected together by a screw inside the base and and a screw from the outside of the hydrant-stock and the loose case on the outside.

50 Q. How are the same parts, A and B, connected together in the defendants' model?

152 A. In the same manner as mine.

51 Q. In both the original and the reissued letters patent aforesaid the last claim refers to parts A, B, valve D, case C, and stuffing-box H. Please examine and compare the defendants' model and state, having reference to corresponding parts, whether you find it composed of the same.

A. I find it the same excepting the valve.

52 Q. Please examine the drawing now shown you, and state whether that is a representation or not of the defendants' model.

A. It is what we would call a "plan" of a model.

By Mr. HILL: I offer this plan in evidence, marked "Exhibit Plan of Defendants' Model."

Cross-examination by Mr. ROBERTS:

53 C. Q. When you first became acquainted with Mr. Samuel R. C. Mathews what was his business, and where was he located in business?

A. He was engaged in the manufacture of pumps, I think sinks, and I guess they made some hydrants at the time, at Lockport, N. Y.

54 C. Q. How near to your place of business was Mr. Mathews' place of business at that time?

A. I had no place of business at that time.

55 Q. C. What were you doing at that time?

A. I was in the employ of the Holly Manufacturing Company.

56 C. Q. In what work were you engaged while in the employ of the Holly Manufacturing Company?

A. General machine work.

57 C. Q. During what years and parts of calendar years were you employed by the Holly Manufacturing Company?

A. I think it was in 1863 and 1864.

153 58 C. Q. Did that company manufacture any hydrants while you were employed by it?

A. They did not.

59 C. Q. When you left the employ of the Holly Manufacturing Company in what business did you next engage, and where?

A. I went to Chicago; was there three or four months. I think I went there the very last of June, 1863, and I must be mistaken as to my being in the employ of the Holly Manufacturing Company in 1863 and 1864; it must have been in 1862 and 1863. I was working in a machine-shop in Chicago.

60 C. Q. When you got through in Chicago in the latter part of 1863 in what business did you next engage, and where?

A. I went to work for my father and brother in Lockport, in a machine-shop.

61 C. Q. What was the firm name under which your father and brother then carried on business?

A. T. R. Bailey & Son.

62 C. Q. I infer from your direct testimony that your father is

not now living; is it so, and is your brother living, and what is his name?

A. My father is not living; my brother is; his name is George Bailey; he lives in Toledo.

63 C. Q. How long did the firm of T. R. Bailey & Son continue, and how long did you work for it without becoming a member?

A. The firm continued until about June, 1865. I worked for them until some time in December, 1864.

64 C. Q. What did you next do, and where?

A. I worked in Buffalo from the 1st of January until some time in April, 1865.

65 C. Q. State all your occupations and the times and places from the time last mentioned until you became a member of the firm of T. R. Bailey's Sons.

154 A. About May 1st, 1865, I rented my brother's interest in the shop and worked with my father for about a month, perhaps a little more. Then I bought father's interest. About a month after my brother came in and the firm was T. R. Bailey's Sons—some time in July, 1865.

66 C. Q. Did either of the firms or persons by whom you were successively employed from the time you left the Holly Manufacturing Company down to July, 1865, when the firm of T. R. Bailey's Sons was established, manufacture hydrants during such time of your employment?

A. Well, I think Crane Bros. did put in just a few around Chicago. I was employed by Crane Bros. while in Chicago. The others did not.

67 C. Q. Did you work upon hydrants at all while in the employ of Crane Bros., in Chicago?

A. I did not.

68 C. Q. Was the shop where your father and the firm of T. R. Bailey & Son and the firm of T. R. Bailey's Sons successively did business in Lockport one and the same shop?

A. Yes, after 1864.

69 C. Q. How near was that shop from the place of business of Mr. Samuel R. C. Mathews?

A. I should say about 200 feet.

70 C. Q. And did your place of business and Mr. Mathews' place of business remain the same until Mr. Mathews gave up business in Lockport?

A. They did.

71 C. Q. What did Mr. Mathews, or the concern with which he was connected in business, manufacture in July, 1865, when the firm of T. R. Bailey's Sons was formed, and how long did that manufacture continue in Lockport?

155 A. I can't tell what they were manufacturing that year. They manufactured pumps and skates some time that year, and sometimes during the four or five years. They made engines, hydrants, sinks, and I think they made flax machines.

72 C. Q. Were not hydrants manufactured by Mr. Mathews, or

the concern with which he was connected in business at Lockport, at the time when the firm of T. R. Bailey's Sons was formed?

A. They were.

73 C. Q. What did the firm of T. R. Bailey's Sons manufacture from July, 1865, when it was first formed, down to September, 1867?

A. They manufactured wood-working machinery—different kinds—and some iron-working machinery. We did a general repair business, and we made some experimental machines for ourselves and other parties.

74 C. Q. When did you make the first hydrant which was intended for practical use?

A. Some time during the summer of 1867.

75 C. Q. Can you not fix the date more closely, giving the month or the day when work was begun upon it?

A. I think it was in July, but I would not say positively.

76 C. Q. Who made the patterns for the castings of that first hydrant?

A. I made the most of them myself. Father made some of them.

77 C. Q. When was the work on those patterns begun?

A. I think it was in July, 1867.

78 C. Q. How long were the patterns making?

A. Probably four or five days.

156 79 C. Q. Who made the castings for that first hydrant?

A. Well, I think Mr. Gardner did.

80 C. Q. Was he a founder doing business in Lockport?

A. He was.

81 C. Q. Please give his full name, and state where he now lives, or last lived to your knowledge?

A. I think his name was Leonard; it was L. Gardner at any rate. His residence is Lockport at present.

82 C. Q. How long was it before you received the castings for the first hydrant, and when was the hydrant itself first put together in working order?

A. I can't tell anything about the receipt of the castings. The hydrant was finished some time in August—the very last of August or the first of September, 1867.

83 C. Q. Did you make working drawings for the patterns for this hydrant?

A. I did.

84 C. Q. When?

A. It was some time in the spring—late in the winter 1866–1867, or early spring, 1867; it was after the 1st of January, 1867.

85 C. Q. Did you yourself, make all the drawings which were made for these patterns?

A. I did.

86 C. Q. Are those drawings now in existence?

A. I don't know.

87 C. Q. Are the patterns of that first hydrant now in existence?

A. I think they are not.

88 C. Q. Have you any reason to believe that the drawings for those patterns are now in existence?

A. I have not.

157 89 C. Q. How many hydrants in all did you make after this first one, and by you I mean either yourself or the firm of T. R. Bailey's Sons.

A. It was five or six—I don't remember.

90 C. Q. When were they made?

A. In the summer of 1868.

91 C. Q. What became of them?

A. One of them is in Lockport now. I think the rest were sold for old junk, but I don't remember.

92 C. Q. Was the first hydrant which you made actually set in the ground and connected with a water-main in condition for use?

A. The first large street hydrant that I made was—I mean the one made in the summer of 1867.

93 C. Q. What finally became of that?

A. I think the Holly Company took it up about four years ago and replaced it with one of theirs. I don't know what became of it.

94 C. Q. Who has the only one of the other hydrants made by you which you say is still in existence at Lockport?

A. It is on the property owned by O. Storrs—the property where Mr. Mathews used to be.

Adjourned until February 29, at 10 a. m.

Cross-examination resumed at 10, February 29.

95 C. Q. In your answer to interrogatory 26 you say that the first hydrant constructed under your patent was made for James Fleming, of Lockport, during the summer of 1868. Was this the second hydrant which you made, the first being that constructed in the latter part of August or first part of September, 1867?

A. It was the second working hydrant for street purposes.

158 96 C. Q. Was this second hydrant ever actually set in the ground and connected to a water-main ready for use?

A. I can't say. I made a lot for Fleming, and one of the lot was set in the ground—put into use.

97 C. Q. Do you mean that one other hydrant of your manufacture, beside the first one, was set in the ground and put into use?

A. Yes, sir; there was.

98 C. Q. And these two hydrants, namely, the very first one made and one of the lot subsequently made for Fleming, were the only hydrants of your manufacture which were actually set in the ground and connected with a water-main read for use—is it so.

A. To the best of my knowledge it is?

99 C. Q. Didn't one of these hydrants blow out when the water pressure was put on?

A. Never to my knowledge.

100 C. Q. Who owns the only remaining hydrant, which you say is now on the property owned by O. Storrs, where Mr. Mathews used to be?

A. It belongs to O. Storrs; it belongs to the real estate; it is set in the ground.

101 C. Q. Did all the hydrants which you made after the very first one belong to the lot which you made for James Fleming?

A. They did.

102 C. Q. Were they all, including the first one, constructed substantially like the model "Exhibit Bailey's Original Model?"

A. They were, with the exception I have named of bolting the cap on instead of screwing it on.

103 C. Q. And they all had loose cases capable of end play, did they?

A. They did.

159 104 C. Q. Was not it in 1869, instead of 1868, that you made the lot of hydrants mentioned for James Fleming?

A. I think not. I think it was in 1868. That is the best of my recollection.

105 C. Q. Who was James Fleming, and for what purpose did you make that lot of hydrants for him?

A. He was a contractor. I think he is there now. I think they were for the East avenue and Washburn street water-pipe extension, in the city of Lockport.

106 C. Q. Did you deliver them upon the ground where they were intended to be used?

A. I did.

107 C. Q. How long did they lie there?

A. I think two or three years.

108 C. Q. Do you know why only one of them was ever set in the ground?

A. I do.

109 C. Q. State what you know about that.

A. Mr. Mathews went to the mayor of the city and threatened to sue them if they put them in or allowed them to be put in—at least that is what the mayor, Albert F. Brown, told me.

110 C. Q. When did the mayor, Albert F. Brown, tell you that?

A. It was during the time they were putting in the water-pipe extension.

111 C. Q. In 1869, was it not?

A. I think it was in 1868.

112 C. Q. Whose hydrants were put down in place of those which you had made to be put down in the same places?

A. I can't tell, but I think they were the Holly Company's; I can't state positively.

160 113 C. Q. You are not able to say, are you, that hydrants manufactured by Mr. Mathews, or by the concern with which he was connected in business, were not put down where yours were intended to go?

A. No.

114 C. Q. At the time when Mayor Brown told you that Mr. Mathews had threatened to sue the city authorities if they put in your hydrants, or allowed them to be put in, you knew, did you not, that Mr. Mathews, or the concern with which he was connected in business, was manufacturing hydrants with loose case having end play?

A. No, sir; I did not know it.

115 C. Q. When, to the best of your present recollection, did you first learn that Mr. Mathews or his concern was manufacturing such hydrants with loose cases having end play?

A. I can't tell the time; it was some time after Mrs. Helen M. Lloyd took possession of the shop.

116 C. Q. Can't you state the year or the month?

A. I cannot.

117 C. Q. Was Mrs. Helen M. Lloyd carrying on the business at the place where Mr. Mathews had been engaged at the time when you first learned the concern was manufacturing hydrants with loose cases having end play?

A. I think she was.

118 C. Q. That was some time between the summer of 1868 and the summer of 1869, was it not?

A. I don't know.

119 C. Q. You are not able to state that it was not, are you?

A. No, sir.

120 C. Q. Who carried on the same business at the same place after Mrs. Helen M. Lloyd ceased to do so?

161 A. I never knew. I supposed she was the last one.

121 C. Q. In what business was Mr. Mathews engaged from the time Mrs. Helen M. Lloyd ceased down to the time when he left Lockport?

A. I don't know. I supposed that when he got through working for her was the time he left Lockport.

122 C. Q. Well, until he left Lockport, in what manufacture was he engaged, either for another concern or for himself?

A. I always understood he worked for Mrs. Lloyd. I did not understand they were manufacturing anything except to close up what they had been doing; what I mean by closing up was finishing up pumps, skates, etc., which they had been in the habit of manufacturing.

123 C. Q. Including also hydrants with loose cases having end play, do you mean?

A. No. I mean making hydrants. I don't know about the end-play business.

124 C. Q. Do you mean to say that you do not know, and did not know at the time, that Mrs. Helen M. Lloyd manufactured hydrants with loose cases having end play?

A. I mean to say that I do not know they were manufacturing those exclusively.

125 C. Q. Did you understand me to inquire at any time during this cross-examination whether Mrs. Helen M. Lloyd manufactured hydrants with loose cases having end play, exclusively?

A. I understood you to mean that—to ask if all hydrants made by Mrs. Lloyd did have loose cases with end play.

126 C. Q. Well, for all you now know, or then knew, all hydrants made by Mrs. Lloyd did have loose cases with end play; is it not so?

162 A. I don't know; I don't think they did.

127 C. Q. But you cannot state positively, can you, that all such hydrants did not have loose cases with end play?

A. No, sir.

128 C. Q. Did you not know at the time that Mr. Mathews, from the time he was employed by Mrs. Helen M. Lloyd, down to 1870, when he left Lockport, was engaged in the manufacture of hydrants having loose cases with end play?

A. No, sir.

129 C. Q. You did not know of any cessation of that manufacture of hydrants having loose cases with end play after you first knew that Mrs. Helen M. Lloyd was manufacturing such hydrants, did you, down to the time when Mr. Mathews left Lockport?

A. I didn't know of any cessation of their manufacture of anything until they closed out, which I always understood Mrs. Lloyd did.

130 Q. And you did not understand that Mrs. Lloyd closed down the manufacture until the time when Mr. Mathews left Lockport, did you?

A. No, sir.

131 C. Q. Then, didn't you understand at the time that the manufacture of hydrants having loose cases with end play went on, among other things, from the time when you first knew that Mrs. Lloyd was carrying on such manufacture until Mr. Mathews left Lockport?

A. Some time after I learned that Mrs. Lloyd was running the shop, I heard they were making hydrants with loose cases with end play; I don't know how long it continued; it might have continued right up to the day he left; I couldn't say; I don't know.

163 132 C. Q. After Mr. Mathews left Lockport did you learn where he had gone and in what business he was engaged?

A. Not for several years.

133 C. Q. Can you fix the date when you learned this?

A. No, sir.

134 C. Q. How many years was it after Mr. Mathews left Lockport before you learned in what business he was engaged?

A. I don't know; I couldn't say; I can't fix it definitely.

135 C. Q. You say in your answer to interrogatory 7 that you first sent your specification to Munn & Co. September 7, 1867, and in answer to interrogatory 8 you say you fixed the date from a copy of a letter which you took from the letter-book of T. R. Bailey's Sons; who had prepared that specification?

A. Munn & Co., of New York.

136 C. Q. And they had sent it to you for execution, had they?

A. Yes, sir.

137 C. Q. Then you had had previous correspondence with them, had you?

A. Yes, sir.

138 C. Q. Are copies of that correspondence in the same letter-

book of T. R. Bailey's Sons from which you took the copy of the letter of September 7, 1867?

A. I don' think they are; I don't think they ever were.

139 C. Q. Were copies of that correspondence put into any other letter-book or preserved in any way?

A. I think not; I think I never kept any copies of them at all.

164 140 C. Q. What makes you think so? Have you looked to find them?

A. Well, I think I looked a few years ago, but my practice at that time was to only keep copies of letters giving prices or relating to money.

141 C. Q. Is the letter-book from which you took the copy of the letter of September 7, 1867, in your possession or under your control, or in the possession or under the control of the plaintiffs in this case?

A. I think not. I think it is in Dubuque, Iowa, in the possession of the Novelty Iron Works there.

142 C. Q. How comes it to be there?

A. I went there to work, carried it with me, and left it there when I came away, I think, in the spring of 1877.

143 C. Q. Have you in your possession or under your control any other letter book containing copies of letters written by you while a member of the firm of T. R. Bailey's Sons down to the date of the issue of your patent No. 75344?

A. No, sir. There were other letter-books of the firm. When one was filled we got another. They are all in Dubuque, if there are any. I think it is more than probable that the book already referred to is the first one we had.

144 C. Q. How about books of account or other business records of T. R. Bailey's Sons covering the time specified in the last preceeding interrogatory? Are they, or any of them, still in existence; and, if so, in whose possession or under whose control?

A. I don't know, but I think they are in Dubuque with the letter-book.

145 C. Q. How long is it since you had in your possession or saw any of these books which I have been enquiring about?

165 A. Not since 1877.

146 C. Q. Did you make or cause to be made in any of those books entries relating to your work in drawings for patterns for the first hydrant made by you, or relating to work on those patterns?

A. I don't think I ever did.

147 C. Q. Did you make or cause to be made any entries relating to the construction of the model sent to Munn & Co., or the model "Exhibit Bailey's Original Model?"

A. No, sir.

148 C. Q. Then all these dates which you have given as to when those models were made, and when the drawings for the patterns for the first hydrant were made, and when the patterns themselves

were made, are stated from memory alone, unaided by any entries relating thereto, are they?

A. Yes, sir; but my memory is aided by the letter from Mr. Goss, from the proceedings of the common council of the city of Lockport, and from the date of the letters patent No. 75344.

149 C. Q. What is your recollection as to the manner in which Munn & Co. were instructed to draw up this specification which you executed for your patent No. 75344?

A. My recollection is that I wrote them about it, giving them my idea of it, some time previous—I think a month—to the forwarding to them of the specifications.

150 C. Q. You say, in answer to interrogatory 9, that you think the model was sent to Munn & Co. before Sept. 7, 1867. How long before, and when with reference to the date of your writing them about it, giving them your idea of it?

166 A. I think probably it was a month before the letter of Sept. 7, 1867; probably about the time of the other letter.

151 C. Q. Do you remember writing Munn & Co. more than one letter of instruction about the preparation of your specification which you afterwards executed and sent Sept. 7, 1867?

A. I do not.

152 C. Q. Did you read the specification which you executed and sent to Munn & Co. Sept. 7, 1867, before you signed and swore to it?

A. I did.

153 C. Q. How long after the date of issue of your patent No. 75344, was it before you received it, and who sent it to you?

A. I couldn't say how long it was. I couldn't say who sent it to me. I thinkit came from Munn & Co., though. I don't remember what the practice was—whether I received it through Munn & Co. or direct from Washington; I couldn't say now.

154 C. Q. How long, according to the best of your recollection, was it after the issue of the patent, March 10, 1868, before you received it? State as nearly as you can.

A. I should say two or three days.

155 C. Q. When you got it did you read it?

A. I did.

156 C. Q. Did you also, as soon as you received it, examine the drawings contained in it.

A. Not particularly.

157 C. Q. What do you mean by that?

A. I mean I didn't consider the drawings were an important part.

158 C. Q. You didn't consider the drawings were an important part of what?

167 A. The letters patent.

159 C. Q. You knew, did you not, when you first saw the drawings of that patent, No. 75344, that from them a hydrant with a loose case having end play could not be made?

A. No, sir; I didn't know any such thing.

160 C. Q. Why did you not know any such thing?

A. Because, as I said before, I didn't consider the drawings an

important part of the patent, and didn't examine to see whether they were correct with the model.

161 C. Q. Have you not testified in this examination in substance that a hydrant with a loose case having end-play could not be made from the drawings of this patent, No. 75344?

A. I have.

162 C. Q. And didn't you know that fact when you first examined those drawings after you got that patent?

A. I did not.

Cross-examination adjourned until 2 p. m.

2 o'clock p. m., cross-examination resumed.

163 C. Q. Why did you construct two models like "Exhibit Bailey's Original Model?"

A. I made one for the Patent Office and one to have for my own use.

164 C. Q. Was the model which you sent to Munn & Co. to be deposited in the Patent Office with your application made up of iron castings, which were the duplicates of the iron castings contained in "Exhibit Bailey's Original Model?"

A. It was.

165 C. Q. Who made the patterns for these iron castings?

168 A. I made them myself.

166 C. Q. When?

A. Some time during the winter of 1866–'7.

167 C. Q. Did you make drawings for the patterns for such iron castings?

A. I did.

168 C. Q. When?

A. Well, I couldn't say positively. I made three or four sets of drawings. I think I made them early in 1866.

169 C. Q. The question is, When did you make the drawings for the patterns for the iron castings which were to become parts of the model "Exhibit Bailey's Original Model," and its duplicate? Please answer as to those drawings alone.

A. I can't give the exact date of it.

170 C. Q. Why not?

A. Because I have no memorandum to refresh my memory.

171 C. Q. Do the best you can from your present recollection.

A. Some time during the year of 1866.

172 C. Q. And you are not able to fix the time any nearer than to state it was during the year 1866, are you?

A. I am not.

173 C. Q. Did you make more than one set of drawings for the patterns for the castings for the models like "Exhibit Bailey's Original Model?"

A. I think not.

174 C. Q. Is any drawing which you made before making the patterns for those models and showing the invention embodied in

such models or any part thereof now in existence, to your knowledge?

A. There is.

169 175 C. Q. What is it?

A. It is a partial plan of the hydrant.

176 C. Q. Is it a part of the drawings which you made for the patterns for the models?

A. I don't think it is. I think I made subsequent drawings for the model.

177 C. Q. Are the drawings which you made for the patterns for the models or any part of such drawings now in existence?

A. I think not.

178 C. Q. Is the partial plan of the hydrant which you mentioned in answer to cross-interrogatory 175 the only drawing made by you and now in existence relating to the invention embodied in "Exhibit Bailey's Original Model?"

A. That is the only one that I know of.

179 C. Q. When was it made?

A. I think it was made in March, 1866.

180 C. Q. Why do you think so?

A. Because there is a memorandum on it of the time it was made—I suppose it is the time it was made. At any rate, it is from that memorandum that I fix the date. Whenever I make drawings I am in the habit of putting the date on them.

181 C. Q. Where is this drawing?

A. I have it.

182 C. Q. Will you produce it?

A. I will. (Witness hands drawing to Mr. Roberts.)

183 C. Q. What is the date on this drawing?

A. March, 1866.

184 C. Q. The word "March" is not in ordinary handwriting, is it, but in what might be called children's hand printing, each letter being formed separately in imitation of print?

170 A. It is not in the ordinary handwriting. It is what might be called hand printing.

185 C. Q. The word and figures "March, 1866," are written in pencil, are they not?

A. Yes, sir.

186 C. Q. Did you yourself put that word and those figures in the in this drawing?

A. I did.

187 Q. C. When?

A. At the time the drawing was made.

188 C. Q. Well, when was the drawing made?

A. When those figures indicate.

189 C. Q. Did it take you all of March, 1866, to make that drawing?

A. Probably not; it might have done it, though.

190 C. Q. Do you have a definite and positive recollection of putting the word and figures "March, 1866," upon this drawing, or have

you forgotten about the circumstance and judge of the time when the drawing was made by finding that date upon it?

A. I judge of the time from the fact of finding it there, because that has always been my practice.

191 C. Q. But you do not remember positively and definitely the circumstance of putting that date in there, do you?

A. I remember I put it there because it is my handwriting.

192 C. Q. Is it the way you write ordinarily?

A. Not ordinarily.

193 C. Q. For all that you remember definitely. You may have written that date, "March, 1866," on that drawing some little time after March, 1866; is it not so?

A. My recollection is that I was in the habit of doing it when I made the drawing—when I commenced it; that is why I am positive.

171 194 C. Q. Then from this habit which you say you had you now judge that you commenced this drawing in March, 1866; is that what you mean?

A. It is.

195 C. Q. Did you make any other drawing or drawings showing the construction embodied in the "Exhibit Bailey's Original Model" before you made that model and its duplicate besides this drawing dated March, 1866, and the drawings for the patterns for those models?

A. I did.

196 C. Q. Before or after the drawing dated March, 1866?

A. Before.

197 C. Q. Did you make any such drawings between the drawing dated March, 1866, and the drawings for the patterns for the models?

A. I couldn't say whether it was between those times. I made a set of drawings showing a full sectional view.

198 C. Q. Fix the date of these last-mentioned drawings as well as you can, say with reference to the time of the construction of the models.

A. I couldn't fix the date at all.

199 C. Q. You know whether it was before or after the construction of those models, do you not?

A. I do not.

200 C. Q. Are they still in existence?

A. I don't think they are.

201 C. Q. And no drawing which you say you made before the drawing dated March, 1866, is now in existence, is it—I mean, of course, relating to hydrants?

A. I don't know of any.

Counsel for defendants requests the examiner to mark the
172 drawing dated March, 1866, produced by the witness for identification hereafter. It is marked "Bailey Partial Plan," February 29, 1884, Walter S. Harsha, special examiner.

202 C. Q. Is the "Exhibit Bailey's Original Model" now the same

in every particular and in the same condition as when it was first made by you?

A. It is, except the waste-valve, which has fallen out, but which can easily be put back.

203 C. Q. In whose possession has the drawing "Bailey Partial Plan" been since it was made, and where has it been kept?

A. For the first few years it was kept in a drawer in a desk we used to keep in the shop of T. R. Bailey's Sons; for the last six, seven, or eight years—I couldn't say how many—it has been in Mr. James Flower's possession. I say Mr. James Flower because all my deals were with him.

204 C. Q. Where was it between the time of its being last kept in the drawer of the desk in the shop of T. R. Bailey's Sons and its delivery to Mr. James Flower?

A. It was in the desk all the time until it was sent to Mr. Flower.

205 C. Q. Where was the "Exhibit Bailey's Original Model" kept up to the time of its delivery to Mr. Flower?

A. It was in the shop of Bailey's Sons and in my house, except such times as I had it about the country.

206 C. Q. When did you have it about the country?

A. Several different times; I couldn't say; one time during the months of August and September, 1867, that I had it at Syracuse and Rochester and Auburn.

207 C. Q. Was the name plate upon which appears "T. R. Bailey Jr., Lockport, N. Y., pat. appl'd for," put upon that model at the time it was first made?

173 A. It was.

208 C. Q. Was the Patent Office model which you sent to Munn & Co. painted like this "Exhibit Bailey's Original Model?"

A. It was.

209 C. Q. (*de bene*). Do you know whether A. H. Goss, who wrote the letter of September 24, 1867, to which you have referred in your direct examination, is now living?

A. I do not.

210 C. Q. (*de bene*). Did you not know that at the time of your visit to Mr. Goss at Auburn, N. Y., he had already, earlier in that year, purchased a considerable number of hydrants having loose cases with end play from the concern at Lockport with which Mr. Mathews was connected in business, and had put the same into use in Auburn?

A. I did not.

211 C. Q. (*de bene*). If this should be proved to be the fact would you think that Mr. Goss' letter refers to any feature of the model "Exhibit Bailey's Original Model" belonging to the loose case thereof?

A. I should; because the loose case was a part of the model I showed him.

212 C. Q. (*de bene*). And you think, do you, that if he already had purchased of Mr. Mathews' concern hydrants with loose cases having end play for use in Auburn he would refer to that feature of your model when he stated in his letter, "It seemed to

me to be a good article for the purpose it was constructed, and to obviate some objections to all hydrants I have ever examined?"

A. I think that if I showed the model to any man, explained its construction and the benefits that I thought would accrue
174 from using it over any hydrant I had ever seen, and he should write me a letter saying in substance what Mr. Goss says in his letter, that he meant just what he said.

(Answer objected to as irresponsive.)

At 5 p. m. adjourned to 10 a. m. March 1.

MARCH 1—10 a. m.

213 C. Q. I understand from your answers to interrogatories 35, 36, and 37 that for four or five years before you applied for your patent No. 75344 you had been familiar with the hydrants manufactured under the Race & Matthews patent No. 19206, granted January 26, 1858; am I correct in my understanding?

(Objected to by Mr. Hill, for plaintiffs, for the reason that the letters patent referred to should be produced and shown to witness.)

A. I was familiar with the hydrant of Race & Mathews from the time of putting in the water-works at Lockport, which I think was in 1863, up to the time of my application.

214 C. Q. Who constructed those water-works?

A. The Holly Manufacturing Co.

215 C. Q. And that company procured the Race & Mathews hydrants, did it, for use in connection with those water-works?

A. They did.

216 C. Q. Were you employed by the Holly Manufacturing Company at the time the Lockport water-works were constructed by it?

A. A portion of the time.

217 C. Q. In what way did you become familiar with the Race & Mathews hydrants so put in by the Holly Manufacturing Company?

175 A. By examining them, with or by the direction of Mr. Holly, and in talking with Mr. Holly about them while the plans were being perfected for the water-works.

218 C. Q. Did you at that time examine the interior construction of those Race & Mathews hydrants?

A. I presume I did, but I wouldn't say positively. I probably examined their drawings, or lithographed chart or plate, or whatever they called it.

219 C. Q. What drawing or lithograph chart or plate do you refer to?

A. Some that Race & Mathews' people used to have to advertise their hyrants.

220 C. Q. What kind of a case did those Race & Mathews hydrants have?

A. What I should call a close case, passing up under a projection on the body of the hydrant.

221 C. Q. How was that case arranged at its bottom?

A. I can't say positively, but I think it sat upon a projecting ring or flange on the base of the hydrant—the crooked pipe that connected with the main.

222 C. Q. The bottom of the case set inside of this ring at the base, did it not, forming a telescope joint?

A. I think not.

223 C. Q. What makes you think it did not?

A. I think it did not because I think it rested upon just a plain flange.

224 C. Q. Don't you remember that the lithographed chart or plate to which you have referred represented the Race & Mathews hydrant as having the bottom of the case inside a base ring so as to form therewith a telescope joint?

(Objected to, as the lithograph or chart is the best evidence.)

A. No, sir.

176 225 C. Q. You will not testify that such was not the fact, will you?

A. No, sir.

226 C. Q. And you will not testify, will you, that the hydrants themselves so made by Race & Mathews' people did not have the bottoms of their cases slipped inside of a base ring so as to form therewith a telescopic joint substantially as represented by the "Exhibit Defendants' Model" in these particulars?

A. I will not.

227 C. Q. What was the name of the concern which manufactured the Race & Mathews hydrants at the time the Holly Manufacturing Company built the Lockport water-works?

A. I don't know. I think it was Race & Mathews.

228 C. Q. What was the name of the next concern which you remember as manufacturing the Race & Mathews hydrants?

A. Well, I don't think I ever knew the company under any name but Race & Mathews and the Niagara Manufacturing Company and Mrs. Lloyd.

229 C. Q. Do you know what happened to the Niagara Manufacturing Co. when Mrs. Lloyd took the business?

A. No, sir.

230 C. Q. You don't remember, then, that the Niagara Manufacturing Co. failed in business, do you?

A. No, sir.

231 C. Q. The case of the Race & Mathews hydrant manufactured under their old patent of 1858 was not attached to the other parts of the hydrant, either at bottom or top, was it?

A. I should say it was attached at the top and held in position by an overhanging flange or ring at the bottom of the top of
177 the hydrant, the part which gives shape to the part of the hydrant which is above ground forming what is termed a loose or detached connection—that is, where the parts are not firmly joined together.

232 C. Q. Such case formed a loose or detached connection both at top and bottom, did it not?

A. The case was not joined in any manner by bolts or anything of that kind, either at top or bottom, but forming, as I said before, a close connection.

233 C. Q. And also forming at both top and bottom what you term in your answer to cross-interrogatory 231 "a loose or detached connection;" is it not so?

A. No, sir; forming a close detached connection.

234 C. Q. What difference do you have in mind between what you called in your answer to cross-interrogatory 231 "a loose or detached connection" and what you call in your answer to cross-interrogatory 233 "a close detached connection?"

A. A "loose detached connection" is where any two or more parts of an article manufactured, like machinery, are joined together in such a manner as that one part can be shifted in its position without disturbing or moving the other parts. A "close detached connection" is where any two or more parts are joined together by an oveplapping flange or dowel-pin in such manner that the parts cannot be separated or moved without disturbing the position of all parts.

235 C. Q. When the Race & Mathews hydrant was set in the ground could not the hydrant tube or stock be unscrewed from its connection with the elbow-pipe leading to the water-main and taken out from its position without disturbing or moving the case which surrounded it?

A. It could, but the case could not be moved without taking it out either sideways or up and down.

178 236 C. Q. Is not that also true of the hydrant and case shown in the drawing of your patent No. 75344?

A. It is not true of the hydrant, but it is of the drawing, which is an error of the draughtsman who made the drawing.

237 C. Q. Is it not true of the hydrant and case which is shown in the drawing of that patent?

A. It is true of the drawing.

238 C. Q. Has the case shown in the drawing of your patent No. 75344 any capacities or capabilities which the case of the Race & Mathews hydrant manufactured for the Holly Manufacturing Co. in 1863, or whenever it was that such hydrant was first furnished to that company, did not have?

A. The drawing does not show that it has any, but the drawing is incorrect. The drawing of the reissued letters patent No. 6990 shows that it has.

(All that part of the answer after the first sentence is objected to by defendants' counsel as irresponsive.)

239 C. Q. From what hydrants that you had seen did you get the plan of interior construction embracing the valve-rod, the means for operating it by a nut at the top of the hydrant, and the arrangement by which the main valve could be opened and shut again without uncovering any part of the hydrant?

A. From no hydrant in existence. It is a well-known principle in mechanics—older than I am.

240 C. Q. Had you ever seen such a plan of construction embodied in a hydrant before you saw the Race & Mathews hydrant?

A. I think I never saw a hydrant but what had the principle involved in it.

241 C. Q. I am not asking you about principles. I want to know whether you ever saw a hydrant in which the valve-rod for
179 opening and closing the main valve could be operated from the outside of the hydrant without opening any cover before you saw a Race & Mathews hydrant? Please answer this.

A. I have.

242 C. Q. Where and when?

A. In Buffalo; the winter the American House burned; I think it was in '64–'65.

243 C. Q. You don't know, then, do you, that the hydrant of that construction which you saw in Buffalo had been manufactured and put into that city by Race & Mathews long before 1864 or 1865?

A. No; the hydrants I refer to were not Race & Mathews' hydrants. I wish to correct my previous answer. The hydrants I saw in Buffalo I had seen five or six years before this time, but the date that I speak of was the only date that I could fix in my mind. I wish to be understood to say that I saw such hydrants previous to 1860.

244 C. Q. If it should be proved that Race & Mathews put just such hydrants into Buffalo in 1857 or 1858, are you able to say that you ever saw any such hydrants of other manufacture before that date?

(Objected to as not within the issues, and not proper subject-matter of cross-examination.)

A. I don't know what you mean by "just such hydrants."

245 C. Q. When did you first examine the interior construction of such a hydrant as you have been speaking about in your answer to cross-interrogatories 241, 242, and 243, or first see such construction represented by any drawing or plate showing the interior of a hydrant?

(Same objection.)

A. If you mean the hydrant I refer to as seeing in Buffalo, I say never, to my knowledge.

180 246 C. Q. Didn't the lithographed chart or plate of the Race & Mathews hydrant to which you refer in your answer to cross-interrogatory 218 show a valve-rod for opening and shutting the main valve capable of being operated without uncovering any part of the hydrant, and also show the interior construction of the means for so operating the valve-rod?

(Same objection, and, further, that the lithograph or chart is the best evidence.)

A. I think it did.

247 C. Q. Don't you know that it did?

(Same objection.)

A. I believe it did.

248 C. Q. Your memory of such things you do not undertake to trust at this distance of time so as to answer more positively, do you?

A. Not without something to refresh it—some circumstances to refer to.

249 C. Q. During such time as you were employed in Lockport, in your father's shop and in the same shop for your father and brother, and afterwards when you were interested in the business carried on there—from, say, 1863 down to 1868 or 1869—how frequently did you visit the place where Race & Mathews, or the Niagara Manufacturing Co., or Mrs. Helen M. Lloyd, carried on business in Lockport?

(Objected to.)

A. I can't say.

250 C. Q. You used to drop in there pretty often, did you not?

A. Not very often, unless I had business.

251 C. Q. What business did you have with either of those concerns?

A. Well, I bought a sink of them once that I remember of. We used to get some castings from them.

181 252 C. Q. Were you acquainted with their pattern-maker?

A. What pattern-maker?

253 C. Q. Were you acquainted with any pattern-maker employed by Race & Mathews or by the Niagara Manufacturing Co.?

A. Very well acquainted with one man that I think worked for them. His name was R. C. Bailey. I am not sure, but I think he worked for them some time. He was an uncle of mine.

254 C. Q. Any other that you now remember?

A. I don't remember of any one.

255 C. Q. Is your memory as poor as that?

A. I never knew what names they had upon their books as workmen.

256 C. Q. The question is whether you remember any other pattern-maker employed by Race & Mathews or by the Niagara Manufacturing Co. at Lockport. Do you mean to say that you do not now remember any such other person than R. C. Bailey?

(Objected to as incompetent and immaterial.)

A. I have already answered that. I don't remember any pattern-maker working there except him. I don't mean to say that I don't know persons they might have employed as pattern-makers. If you will give me the names of those who were employed as such, then I will answer whether I know them or not.

257 C. Q. Is R. C. Bailey the only man you now remember who worked, to your knowledge, upon patterns for Race & Mathews or the Niagara Manufacturing Co. in Lockport?

A. I have already answered twice that he is.

258 C. Q. And do you mean to say also that you do not now re-

member any other man than R. C. Bailey who you have
182 been informed at any time worked upon patterns for Race & Mathews or the Niagara Manufacturing Co. at Lockport?

(Same objection.)

A. He is the only man that I remember.

259 C. Q. And do you say the same as to any other man than R. C. Bailey, who worked upon patterns for Mrs. Helen M. Lloyd, either to your knowledge or by information?

(Same objection.)

A. I do.

260 C. Q. Now, did you not in the year 1876, or thereabouts, write a letter to Jared M. Gleason, of Erie, Pa., inquiring about the date of certain hydrant patterns which he made at Lockport while in the employ of the Niagara Manufacturing Co.?

A. Not that I remember of; I won't say that I did not.

261 C. Q. Didn't you write him, also, another letter upon the same subject some time after the time mentioned?

(Objected to, unless the letter is produced.)

A. I don't know.

262 C. Q. Do you mean to say now, after your attention has been called to this matter, that you have no remembrance whatever of writing any such letter or letters to Mr. Gleason?

(Same objection.)

A. I do.

263 C. Q. Do you recall to mind, now that your attention has been directed to Mr. Gleason's name, that he was a pattern-maker in the employ of the Niagara Manufacturing Co., or that he worked upon patterns for that company?

183 A. I remember that he worked for them—I supposed as a machinist. I might have known at the time that he worked upon patterns.

264 C. Q. But you mean to say, do you, that you have now no remembrance that he did work upon patterns?

A. I do.

Adjourned at 1 to 2 p. m.

2 p. m., cross-examination resumed.

265 C. Q. Were you in the habit of visiting the pattern-making room of the Niagara Manufacturing Co., in Lockport?

A. Not to my knowledge now.

266 C. Q. Do you remember of visiting it at all prior to the summer of 1867?

A. I do not.

267 C. Q. Do you remember visiting it during the summer of 1867 or prior to the issue of your patent No. 75344?

A. I do not.

268 C. Q. You will not testify positively, will you, that prior to

the issue of that patent you did not visit the pattern-making room of the Niagara Manufacturing Co.?

A. I will not.

269 C. Q. Now, isn't it a fact that during the summer of 1866, while the hydrant patterns of the Niagara Manufacturing Co. were being altered so as to give the case end play, you were in the pattern-making room of that company and saw that work going on or finished?

(Objected to [as] not proper subject of cross-examination, leading, immaterial, and incompetent.)

A. Not to my knowledge.

184 270 C. Q. Do you positively testify that you were not?

A. I do not.

271 C. Q. Do you remember that at any time you went to the shop of the Niagara Manufacturing Co. and measured the patterns, or parts thereof, belonging to the hydrants there manufactured, with loose cases having end play?

A. No, sir.

272 C. Q. Do you positively testify that you did not so measure such patterns, or parts thereof, there?

A. I do, to the best of my knowlede and belief.

273 C. Q. (*de bene*). In your answer to interrogatory 33 you refer to a conversation had with Mr. Mathews in an office used by Washburn Race, in the building occupied by Race & Mathews or the Niagara Manufacturing Co., and you say you cannot give the time, but that it was some months after your patent No. 75344 was issued. Did not that conversation take place shortly after Dec. 17, 1868—that is to say, late in the year 1868 or early in the year 1869?

A. It is my impression that it was in the winter some time.

274 C. Q. (*de bene*). And it is your impression that the conversation referred to happened in the winter next following that in which your said patent was issued?

A. It is.

275 C. Q. (*de bene*). Did Mr. Mathews then and there tell you that he had made application for a patent for a hydrant having a loose case with end play, or give you to understand, in substance, that such was the fact?

A. Well, I understood it, but I couldn't say from what source—whether from him or some other.

185 276 C. Q. (*de bene*). Did he then and there tell you that his application had been rejected on a reference to your model in the Patent Office?

A. I don't think he did; I never understood it so.

277 C. Q. (*de bene*). Did you not understand from him then and there that he claimed himself and Mr. Race to be the inventors of the loose case with end play?

A. I did not.

278 C. Q. (*de bene*). What did you understand to be the fact, at that time and on that occasion, with reference to the application,

which you say, in answer to cross-interrogatory 275, you understood from some source?

A. I understood the fact that he had made application for a patent on his hydrant. I did not know what his claim was. From talk I had heard upon the street and the fact he asked me to make a disclaimer that he claimed the loose case, which I denied as being his.

279 C. Q. (*de bene*). When you say, in the last preceding answer, "I understood the fact that he had made application for a patent on his hydrant," you mean, do you, his hydrant with loose case having end play?

A. That is as I understood it.

280 C. Q. (*de bene*). When you say, in the same answer to cross-interrogatory 278, that you "denied the loose case as being his," do you mean that you denied it on the street, where you say you heard talk about it, or that you denied it to Mr. Mathews himself?

A. I denied it to Mr. Mathews himself.

281 C. Q. (*de bene*). At the time of the conversation mentioned, do you mean?

A. Yes, sir.

282 C. Q. (*de bene*). Then Mr. Mathews, at that time and on that occasion, denied that invention himself, did he?

186 A. Not to me.

283 C. Q. (*de bene*). How did it happen, then, that you denied what you say he did not claim to you?

A. He asked me to put in a disclaimer, and I told him I shouldn't do it, or words to that effect. That I had a good thing and I was going to keep it.

284 C. Q. (*de bene*). And the reply which you state in the last preceding answer is the denial you referred to in your answer to cross-interrogatory 278, is it?

A. Yes.

285 C. Q. You knew that he got a patent for a hydrant with loose case having end play, did you not?

(Objected to [as] not a proper subject of cross-examination, leading, immaterial, and incompetent.)

A. Well, I knew it at some time or other. I knew he got a patent on a hydrant; I wouldn't say whether it was loose case or not I never saw the claim—I never saw the claim until lately.

286 C. Q. When you learned from Mayor Brown, of Lockport, that Mr. Mathews had threatened to sue the city if it used your hydrants with loose cases having end play, you knew, did you not, that Mr. Mathews was asserting the rights of an inventor to such a structure?

(Same objection.)

A. No; I did not know it, because I did not know what the law was—that is, I mean to be understood to say that if he had any grievances for infringement it was with the party making the infringement—that is, I suppose so.

287 C. Q. Did not Mr. Mathews send you a letter warning you that the hydrants which you had made for James Fleming, or for the city of Lockport, infringed upon his rights as the inventor, or joint inventor with Mr. Race, of a hydrant having a loose case with end play?

187 A. I don't think he ever did. I have no recollection of ever seeing such a letter.

288 C. Q. You do not testify positively, do you, that you did not receive such a letter from him?

A. I do, to the best of my knowledge and belief.

289 C. Q. When you learned that Mr. Mathews had threatened to sue the city of Lockport if it suffered your hydrant with loose cases having end play to be put into use, didn't you take interest enough in your patent No. 75344 to examine it or to take advice upon it to ascertain whether you really had any right to construct hydrants such as those Mr. Mathews threatened?

A. No; I took no advice from anybody, because I knew I had the right to manufacture them.

290 C. Q. How did you know that you had such a right?

A. From my common sense.

291 C. Q. And yet you let your hydrants lay on the ground in Lockport unused, while Mr. Mathews went on manufacturing, claiming the right to manufacture, without your doing anything, either to put your hydrants into use or to contest with him such right, did you?

(Objected to as leading, immaterial, and incompetent, not proper cross-examination, because if it is answered the defendants make the witness their own.)

A. To all of the question up to and including the word "use," I say no; all after that, yes. I mean to say that I made no effort to contest the validity of the patent, either mine or Mathews'.

Adjourned at 4 p. m. until Tuesday, March 4, at 10 a. m.

188 TUESDAY, *March* 4—10 a. m.

Adjourned until 2 p. m.

TUESDAY, *March* 4—2 o'clock p. m.

Cross-examination resumed.

292 C. Q. In your last preceding answer you say no to all of the interrogatory up to and including the word "use." Did you not let your hydrants therein referred to lay on the ground unused?

A. The hydrants laid there on the ground for some time, perhaps a year or two; I don't remember; but during all this time I tried to get them into use.

293 C. Q. But you never did get them into use, did you?

A. One of them I got into use. The others, I have said before, were never put into use.

294 C. Q. Meanwhile Mr. Mathews went on manufacturing hydrants with loose cases having end play, did he not?

A. Not to my knowledge.

295 C. Q. But you knew, did you not, that the manufacture of such hydrants went on, and that Mr. Mathews was concerned in it, either on behalf of Mrs. Helen M. Lloyd or otherwise?

A. No. I supposed the manufacture stopped when Mrs. Lloyd took it, except in a few instances, some experiments, or something of that kind. I base my answer upon the recollection that their business was closed up in 1868 or 1869.

296 C. Q. When you say their business was closed up in 1868 or 1869 do you mean the business of the Niagara Manufacturing Co.?

A. I mean the business that had been conducted by the Niagara Manufacturing Co.

297 C. Q. After you learned from Mayor Brown that Mr.
189 Mathews had threatened to sue the city of Lockport if your hydrants were put into use, did you take any pains to ascertain what Mr. Mathews was manufacturing or selling in the way of hydrants?

A. I think not.

298 C. Q. From that time onward, as long as Mr. Mathews remained in Lockport, did you inform yourself what hydrants he was manufacturing or selling, or take any pains to so inform yourself?

A. No, sir.

299 C. Q. Where was that single hydrant out of the lot made for James Fleming set in the city of Lockport?

A. On Market street, on the property owned by O. Storrs, formerly occupied by the Niagara Manufacturing Co., set out right at the curbstone.

300 C. Q. Was it set for the use of the city or for the private use and as the private property of O. Storrs or the then owners of the same real estate formerly occupied by the Niagara Manufacturing Co.?

(Objected to as immaterial.)

A. It was set as the private property of the owner of the real estate, whoever it might have been, and for the use of the city if they wanted it.

301 C. Q. Did you sell it to that owner or give it away?

A. I can't say as to that. I think we received pay for it in the way of rents from the building and shop which we occupied after the Niagara Manufacturing Co. left the premises.

302 C. Q. How long after Mrs. Helen M. Lloyd got through occupying those premises did you or your firm occupy them, and in what year was it?

A. My recollection is it was about three years afterwards. Possibly I may be mistaken about it. I think we commenced there in 1871. I am not sure about it.

190 303 C. Q. Just where was the first hydrant which you made set; I mean the one which you say was put down by the permission of the city council?

A. I can't say, except it was set on Transit street, somewhere

between Buffalo street and the end of the water-pipe near High street.

304 C. Q. After you found that you could not get your hydrants into use because of the threatened suit from Mr. Mathews, did you consult Mr. Birdsall Holly as to how you might alter the construction of your hydrant so as to avoid Mr. Mathews' charge of infringement upon his invention?

(Objected to as incompetent and immaterial.)

A. No, sir.

305 C. Q. Now, do you not recall to mind a conversation with Mr. Holly about that time in reference to this matter in the course of which he advised you to put a set-screw into your loose case so as to clamp it against the hydrant stock, and thus prevent end play?

(Same objection.)

A. I don't recollect any such conversation.

306 C. Q. Do you positively testify that no such conversation ever took place?

A. I positively testify I have no recollection of such a conversation, and don't believe there ever was.

307 C. Q. What became of the patterns for the first hydrant which you made in the summer of 1867?

A. I think they have been worked up into some other kind of patterns.

308 C. Q. How long did you keep them entire in condition to be used for hydrant castings?

(Same objection.)

A. I think until the last four or five years; I wouldn't say positive; I think it was until about 1879.

191 309 C. Q. And during all the twelve years or thereabouts of their existence you never attempted to make hydrant castings from them after the city of Lockport refused to permit the lot contracted for by James Fleming to be put down, did you?

(Same objection.)

A. No, sir.

310 C. Q. How long did the firm of T. R. Bailey's Sons continue to do business in Lockport, N. Y.?

A. It was until either 1870 or 1871; it might have been early in 1872.

311 C. Q. Did you continue to carry on the same business there, either alone or as a member of the firm, thereafter; and, if so, how long and under what name or names?

A. I did until January 29, 1876, under the firm name of T. R. Bailey & Vail.

312 C. Q. What was Mr. Vail's full name, and if living where does he now reside?

A. Lewis W.; he is not living.

313 C. Q. You say, in answer to interrogatory 42, that you did not

manufacture more hydrants than the Fleming lot between the date of your original patent and the date of your reissue "because I lacked the money to put it in the market properly." What did you mean precisely by this?

A. I mean that if a man wants to sell hydrants or any manufacture of the kind he must have means to enable him to procure lithograph charts or wood-cuts representing his manufacture; also sufficient means to enable him to travel about the country to exhibit his manufactures to corporations or persons who need the same.

314 C. Q. You do not mean to say, do you, that if you had chosen you could not readily have paid for lithograph charts or wood-cuts of a hydrant?

192 (Objected to as immaterial and imcompetent.)

A. I do.

315 C. Q. How much of a business did you do from year to year between the date of your original patent and the date of your reissue?

(Same objection.)

A. I don't know.

316 C. Q. How many men did you employ from year to year during that time?

A. I couldn't say positively. I think anywhere from three to fifteen.

317 C. Q. And you, and your partners also, participated in work of the shop, did you not?

(Same objection.)

A. One of my partners never did anything of the kind; he was simply a clerk or book-keeper. I always did different parts of the business; sometimes worked in the shop, and sometimes off selling.

318 C. Q. And you mean to say, do you, that with all the income you had from a business which required from three to fifteen workmen and a partner to act as clerk or book-keeper, besides what you did in the shop and outside, you could not have spared money enough, if you had chosen, to pay for a lithograph or wood-cut of a hydrant?

A. I do.

319 C. Q. You have said that Mr. James Flower called your attention to a difference between the drawing of your original patent No. 75844 and your model, and you further state that you think this was in the city of Cleveland, in the spring of 1876. Please now state all that occurred on that occasion.

A. I don't think I could. The principal business transacted was to engage Mr. Leggett to make an application for reissue.

193 320 C. Q. Didn't your visit to Cleveland on that occasion occur early in February, or late in January, 1876, instead of in the spring of that year?

A. By referring to this letter patent reissue, No. 6990, I find that

the application was filed February 17. My visit to Cleveland was before that time. I never was there but once on that business.

321 C. Q. Had you seen and talked with Mr. James Flower upon the same subject before that visit to Cleveland?

A. I can't say positively. I met him about that time, but whether it was before or after I can't say positively.

322 C. Q. But you met him at Cleveland, did you not, when you went to engage Mr. Leggett to make application for the reissue?

A. I did.

323 C. Q. What carried you down there—a letter from Mr. Flower or a request from him in person?

A. It was a letter or telegram, I think.

324 C. Q. Had you received from him previously any letter or letters on the same subject?

A. I think I had received letters from him. I don't think anything was ever said about the discrepancy between the drawing and the model in the letters received.

325 C. Q. Had you seen him personally before you went to Cleveland on the occasion mentioned?

A. I can't say positively whether I had or not.

326 C. Q. What is your best recollection about it?

A. My recollection is that it was afterwards, a few days.

327 C. Q. That what was afterwards a few days?

A. That I met Mr. Flower.

194 328 C. Q. Have you not already testified that you met Mr. Flower at Cleveland on that occasion?

A. I have.

329 C. Q. Then, when I ask you whether you had seen him personally before you went to Cleveland, why do you answer that you saw him a few days afterwards?

A. I answered that I saw him about that time; whether it was before or after I went to Cleveland I don't recollect, but think it was after.

330 C. Q. You mean, then, do you, that you do not remember whether you saw Mr. James Flower for the first time at Cleveland or previously to your visit there already mentioned.

A. I do. I think it was after.

331 C. Q. Think what was after?

A. When I saw him for the first time I think it was at Cleveland, but I don't say positively.

332 C. Q. Have you in your possession or under your control any letter or letters written you by Mr. James Flower previously to the date of your assignment to him and his brothers, dated March 30, 1876?

A. I think not.

333 C. Q. What makes you think not?

A. Because I don't know that I have any.

334 C. Q. Have you made any search to ascertain?

A. Not lately.

335 C. Q. At any time, and with what result?

A. I know I used to have some.

336 C. Q. What is become of them?

A. I don't know, but I think Mr. Hill has them.

337 C. Q. What makes you think that?

A. I gave them to him.

338 C. Q. When?

A. Last Wednesday I gave them to him—Feb. 27.

195 339 C. Q. By Mr. Hill you mean the gentleman here present as counsel for the plaintiffs in this case, do you?

A. I do.

340 C. Q. What did Mr. Flower tell you about your original patent and Patent Office model when you met him at Cleveland or at any other place for the first time?

A. I couldn't say what he said, except we would have to have a reissue because of some defect in the papers as prepared by Munn & Co.

341 C. Q. Had he bargained for the purchase of your patent at that time?

A. I think not, but I am not sure. If he had it was contingent that the reissue would be granted.

342 C. Q. Was your bargain with him in writing?

A. I think so.

343 C. Q. Why do [you] say you think so; don't you know so?

A. No. I don't know so, but I believe so.

344 C. Q. Where is that written bargain now?

A. If it is in existence Mr. Hill has it.

345 C. Q. Haven't you seen it lately?

A. No, sir.

346 C. Q. What reason have you for supposing Mr. Hill has it?

A. I suppose it is among the letters I gave Mr. Hill.

347 C. Q. And you gave Mr. Hill that written bargain, did you, last Wednesday, February 27, 1884, along with the letters mentioned.

A. If it was among the letters I did.

348 C. Q. Don't you know whether it was among the letters or not?

A. No, sir.

349 C. Q. You mean to say, do you, that you didn't ex-
196 amine the papers which you gave Mr. Hill last Wednesday enough to know whether that written bargain was among them or not?

A. I mean to say that I didn't examine them at all.

350 C. Q. At your first interview with Mr. James Flower did he tell you that he had been to the Patent Office and had examined your model there?

A. I don't recollect that he ever told me that he had been to the Patent Office.

351 C. Q. Did he tell you how he had ascertained that the model differed from the drawing of your patent No. 75344?

A. I don't remember that he did.

352 C. Q. Didn't he tell you that there was a difference between them?

A. At the time I met him in Cleveland I think he did.

353 C. Q. Just what did he tell you about this on that occasion?

A. I can't say.

354 C. Q. Have you told all that you remember his telling you on that occasion?

A. I have.

355 C. Q. Did you move in the matter of procuring the reissue in suit of your own accord, or because Mr. James Flower induced you to do so?

A. Because Mr. Flower wanted me to do so.

356 C. Q. He sought you out, did he, and made a bargain with you to procure the reissue for his benefit?

(Objected to as immaterial.)

A. I don't know whether he did or not.

357 C. Q. You know he sought you out, don't you?

(Same objection.)

A. I don't know what you mean by his seeking me out.

197 358 C. Q. The consideration made in this assignment of March 30, 1876, from you to James Flower & Bro., "Exhibit Bailey's Assignment," is five dollars. Was that the true and sole consideration for which you procured the reissue and assigned it to them?

A. No, sir.

359 C. Q. Have you any interest, either direct or indirect, in the reissue sued upon or in the result of this suit?

A. No pecuniary interest.

360 C. Q. You understood, did you, that the last preceding interrogatory applied to any indirect interest which you might have by any possible benefit to yourself and family?

A. Yes, sir.

Adjourned to 5th, at 10 o'clock a. m.

Cross-examination resumed March 5, at 10 a. m.

361 C. Q. Who employed Messrs. Leggett & Leggett to prepare your application for the reissue in suit?

A. I don't know.

362 C. Q. You know you did not, don't you?

A. Yes, sir.

363 C. Q. Who paid your expenses in going to Cleveland on this business?

(Objected to as unimportant.)

A. I think Mr. James Flower did; I am not positive about it.

364 C. Q. Did you give Messrs. Leggett & Leggett or their representative any instructions as to the preparation of your application for the reissue in suit?

A. I think not.

365 C. Q. The whole business of preparing that application was done by others than yourself, was it not?

A. It was.

198 366 C. Q. And all you did about it was to sign and swear to it after it had been prepared and sent to you for that purpose; is it not so?

A. I think so, except to return the papers to Mr. Leggett.

367 C. Q. What was the actual consideration paid you by Mr. James Flower and his brothers for the assignment of the reissue in suit?

(Objected to as immaterial.)

A. $1,000.

368 C. Q. Was the sum of one thousand dollars paid you at that time, or does it or any portion of it yet remain to be paid?

A. The $1,000 was paid to me on the 30th day of March, 1876.

369 C. Q. And no further sum now remains to be paid you on account of this reissue, or has been promised you; is it so?

A. No sum remains to be paid, nor has any been promised.

370 C. Q. What else besides the model "Exhibit Bailey's Original Model" and the reissued patent in suit did you turn over to Mr. Flower when you made the assignment mentioned, or after he bargained with you to purchase such reissue, or since then?

(Objected to as ambiguous and uncertain.)

A. In some manner or other I have given Mr. Flower some letters, and a drawing which has been produced here was given to him; the original letters patent No. 75344 also. These papers I speak of were probably all sent to him by mail at different times. At the time I made the assignment that was the only thing delivered.

371 C. Q. When and how did you deliver to Mr. Flower the original patent No. 75344?

199 A. I don't know when, but I think by mail.

372 C. Q. Before or after your visit to Cleveland mentioned?

A. Before, I should say.

373 C. Q. Among the letters sent or delivered by you to Mr. Flower were there letters which had been received by you from Jared M. Gleason, of Erie, Penn.?

A. I don't know, but I think not.

374 C. Q. Have you those letters, or are they under your control?

A. If you mean letters from Gleason, I don't know of any.

375 C. Q. Did he not, in the year 1876, write you a letter stating the time when he made or altered the hydrant patterns of the Niagara Manufacturing Co. so as to give the loose case end play?

A. Not to my knowledge or belief.

376 C. Q. Do you deny that Jared M. Gleason sent you such a letter at any time?

A. No, sir; I don't know what Jared M. Gleason does.

377 C. Q. Do you deny that you received at any time such a letter from Jared M. Gleason?

A. I will say I have no recollection of ever receiving any letter from Mr. Gleason.

378 C. Q. Do you think you would have forgotten it if you had received such a letter from him?

A. I may have forgotten it if I had received 100 from him.

379 C. Q. After you had sent your model to Munn & Co., in 1867, did you ever see it again?

A. No, sir.

380 C. Q. Did you see me this morning unscrew the brass bushings by which the hydrant stock is connected with the elbow in "Exhibit Bailey's Original Model" and take out the leather washers therefrom?

200 A. I saw you unscrew one bushing and take out a piece of packing.

381 C. Q. And you saw me also take out the brass ring which is screwed into that bushing, did you not?

A. Not this morning, I didn't.

382 C. Q. How many thicknesses of leather packing or leather washers were there in, under, and upon this brass bushing when you produced the model here in evidence?

A. There should have been three. I did not examine it to see whether there were three or not, but I believe there were.

383 C. Q. Where should those three leather washers have been located, respectively?

A. One should be under the bushing, on a rim or projection of the base made to receive the packing; one should be in the bushing around the valve under the brass ring screwed into the bushing; the other on the top of the ring in the bushing, placed there to form a joint at the bottom of the hydrant stock.

384 C. Q. Were there not, in fact, two leather washers placed one on top of the other under the brass bushing and on the rim or projection of the base to which you refer?

A. I don't know; if there was it was because the leather was too thin to make a proper packing with one piece.

385 C. Q. Were there not also, in fact, two leather washers between the ring and the interior shoulders of the brass bushing when this model was produced here in evidence?

A. If there was it was for the same reason before given.

386 C. Q. Don't you know that there were two there?

A. No, sir.

201 387 C. Q. Did you not sit facing me, or nearly so, on the opposite side of the table, when yesterday I for the first time unscrewed the brass ring and took out those two leather washers from under it?

A. I sat in about the same position I do now, I think, substantially as you describe, and saw you take out the ring, but didn't notice how many washers there were.

388 C. Q. I have now removed all the washers from this "Exhibit Bailey's Original Model," and have, as well as I could, screwed the metal parts close together, and I now ask you how much end play the loose case has with the parts in that condition.

A. About $\frac{3}{32}$ of an inch.

389 C. Q. Can you give that loose case, in the condition the parts now are, more than $\frac{1}{16}$ of an inch actual end movement?

A. Yes, sir; the exact measurement, as near as can be measured with a rule, is $\frac{3}{32}$ of an inch.

(Question and answer objected to as immaterial.)

390 C. Q. What is the outside diameter of the body of the case of the "Exhibit Bailey's Original Model?"

A. An inch and three-quarters, as near as I can measure it with the implements at hand.

391 C. Q. What was the outside diameter of the body of the case of the hydrants which you made like this model in 1867 and 1868, as you say?

A. I don't know; I think about eight inches.

392 C. Q. Did the cases of those full-sized hydrants have more than three-sevenths of an inch end play?

A. Yes, sir.

393 C. Q. What was the ordinary thickness of the leather washers used in those full-sized hydrants?

A. From an eighth to three-sixteenths of an inch, probably.

202 394 C. Q. Then the combined thickness of all three such washers would be from three-eighths to nine-sixteenths of an inch, would it?

A. Probably.

395 C. Q. If the outside diameter of the case of those full-sized hydrants was eight inches, that diameter was 4 and $\frac{4}{7}$ times the outside diameter of "Exhibit Bailey's Original Model," was it not?

A. I don't remember; I could not tell without figuring it.

396 C. Q. It is so, is it not, if one and three-quarters multiplied by four and four-sevenths makes a product of eight?

(Objected to as calling for an answer to a self-evident proposition.)

A. I haven't computed it; I don't know.

397 C. Q. If I am right in this computation then your full-sized hydrants were $4\frac{4}{7}$ times larger than "Exhibit Bailey's Original Model," and if I am also right in finding that the $\frac{3}{16}$ of an inch end play of the case, which you say it now has in its present condition without washers, when multiplied by $4\frac{4}{7}$ gives $\frac{3}{7}$ of an inch end play for the case of a full-sized hydrant, proportionately made and in the same condition, then this being added to the thickness of the washers for a full-sized hydrant, as stated by you, gives in all from $\frac{4}{5}\frac{5}{6}$ to $1\frac{1}{1}\frac{1}{2}$ of an inch, or, approximately, from a little over $\frac{3}{4}$ of an inch to a trifle less than one inch. Now, in your opinion, is an end play of from three-fourths of an inch to an inch sufficient for the case of a full-sized hydrant to enable it, in the language of your reissues, "to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper?"

203 (Objected to as immaterial.)

ference of the thickness of the packing taken out of there;" is it not so?

A. No, I only referred to the packing taken out from under the bushing, and not to the packing under and above the brass ring. I think the ring is designated as the letter O in both patent drawings.

405 C. Q. But if you take into account all the packing in this model when it was first put in evidence here, the difference
205 between the end play of the case then and its end play now is just "the difference of the thickness of the packing taken out of there," is it not?

A. It would be substantially the same.

Adjourned at 1 o'clock to 2 p. m.

WEDNESDAY, *March* 5—2 p. m.

Direct examination resumed.

By Mr. HILL: In view of the amendments filed by the defendants since the taking of the direct evidence of this witness in this cause, I find it necessary to examine the witness further as to new matter, which I deem within the issue as now presented by the pleadings in this cause.

406 Q. When did it first occur to you to make a hydrant substantially as shown by "Exhibit Bailey's Original Model?"

A. Early in the spring of 1865.

(Both question and answer objected to as immaterial, the only issue in this connection being whether the invention now embraced in the reissue sued upon was disclosed by the original application of this witness.)

407 Q. How do you fix the date?

(Same objection.)

A. It was about the time I went from Buffalo to Lockport.

408 Q. State what, if any, circumstances you now recall which enable you to fix the date as you have done?

(Same objection.)

A. I fix the date from the fact that I went to Buffalo to work January 1, 1865, and I left there some time during the
206 month of April to take an interest in the business then conducted by my father and brother, by buying the interest of one or the other of the parties—that is, of my father or brother.

409 Q. When was the first complete hydrant made by you substantially like the aforesaid model?

A. Some time during the fall of 1865 or early winter of 1865.

410 Q. How do you fix this date?

A. I fix it from several circumstances. One is the return of my brother from Medina. He and I had a conversation in regard to it, and he said in substance that I had better not fool away my money on it. Another circumstance is that the hydrant was completed and in operation several months prior to the making of the model as exhibited here. I remember the fact of my making a tin model for another purpose, from which I got the idea of the cylinder valve.

411 Q. When and where did you first get the idea of making a hydrant with a loose case?

(Same objection as to interrogatory 406.)

A. The thought first occurred to me while walking on the street, some time during the winter of 1864–'65 or early spring of 1865, in the city of Lockport—I think upon Pine street—where a hydrant had either been taken out or parties were in the act of taking it out because of its being broken, as I believed it to be, from the action of the frost. I had had several conversations with, I think, Mr. Wm. G. Hamilton in regard to defects in hydrants then in use.

412 Q. Where did Mr. Hamilton then reside, where does he now reside, and who was he?

A. He resided in the city of Lockport. He now resides, I believe, in Indianapolis. He was a machinist by trade. I think he was then working for the Holly Manufacturing Co.

207 413 Q. Of whose manufacture was this broken hydrant that you then saw, if you know?

A. I think it was Race & Mathews'.

414 Q. Where was the breakage in that hydrant and what was its construction generally, as near as you can remember?

A. The breakage was in the stock of the hydrant.

(Witness is here shown Vol. 3, 1858, U. S. Patent Office Reports, page 430, drawing 19206, and asked further, Will that aid you in the matter in any way?)

Witness continues: My recollection is that the general conformity of the hydrant is as here represented, except that the valve was opened with a screw, instead of the eccentric, as shown in this drawing.

415 Q. Indicate upon the drawing where the breakage occurred in the hydrant which you have spoken of, and indicate, if you please, how it happened.

A. My recollection is that it was very near the bottom of the stock, just above the valve. I should say it happened by the earth freezing, bringing a force under this overhanging projection on the body of the hydrant greater than the strength of the material of which the hydrant was made.

416 Q. Did it occur to you at this time how to remedy this difficulty in the manufacture of hydrants? If yes, state what the remedy was.

A. It occurred to me that if I should put a loose case upon a hydrant and get rid of a shoulder or fulcrum for the earth to act upon when upheaving by the frost the difficulty would be overcome.

417 Q. How soon after this was it that you prepared a sketch or drawing or diagram embodying this idea?

(Same objection as to interrogatory 406.)

A. I think it was some time in the fall following.

208 418 Q. How do you fix that date?

(Same objection.)

A. I fix it from the time, or about the time, I made my tin model, spoken of before, and the commencement of the making my first or experimental hydrant.

419 Q. Where was this experimental hydrant set up?

A. It was in the basement of the building adjoining the one occupied by myself and brother and owned by Trevor & Co., situated between Market street and the canal, Lockport, N. Y.

420 Q. How long did that remain there?

A. Well, I should say about a year; perhaps more.

421 Q. What became of it?

A. I think it was broken up and melted up after a few years. It laid about the shop for a long time after taking it down.

422 Q. Please describe that experimental hydrant, as near as you can.

A. The construction of it was very similar to this model, "Exhibit Bailey's Original Model," except this bead as shown upon the model was not upon it. The case could be lifted until it struck the hose nozzle or discharge orifice, and the part where it connected with the water-main was made to connect with gas-pipe fittings; otherwise it was essentially the same as this model.

423 Q. State whether or not the same was shown by you to other parties, and whether the place where it was then set up was readily accessible.

A. I did show it to different parties. The door was open to the basement most all times of day.

424 Q. Please name some of the persons you now remember to whom you showed this experimental hydrant.

209 A. I showed it to Mr. Wm. Spaulding, Mr. George Bailey, Mr. J. E. Ferguson, and, I think, to Mr. Wm. G. Hamilton; also the Trevor Bros., I am sure, because it was in their building; also, I think, to Mr. Charles R. Penfield, but I am not quite positive about him.

425 Q. I notice in your model "Exhibit Bailey's Original Model" that the base of the hydrant, as you have termed it, represented as the part B in the specifications in both the original and reissue patents, is of peculiar form and construction, differing materially from the hydrant represented in the drawing which you just now examined in the Patent Office Reports, 1858, vol. 3, page 430. What is the occasion for that?

A. The peculiar construction of the valve renders it necessary to have a water space on all sides or surrounding it, in order to have equal pressure on all sides of the valve, so as to render the working of it perfectly easy under all circumstances.

426 Q. Please give the dimensions, as near as you can remember, of the experimental hydrant of which you have spoken.

A. The base was about six or seven inches in diameter and about three inches up and down; the stock at the bottom, where it screwed into the base, three or three and one-half inches in diameter; the top of the stock, immediately under the top end of the case, about

the same diameter as the bottom. I should say the extreme height of the whole was about two and one-half feet. The opening in the base, I think, was for inch-and-a-half gas-pipe; it might have been one and one-quarter inches; the discharge opening for ordinary three-quarter or inch rubber hose. The loose case was about four inches in diameter outside, and I should say eighteen or twenty
210 inches in length. The valve was about two inches, outside diameter, and I should say about three inches in length, perhaps three and one-half.

427 Q. What were its connections?

A. It connected on to what we termed a "trunk" or "penstock" for a water-wheel.

428 Q. Were drawings made for the castings for this hydrant, and whether it was cast—also patterns, and who made them, respectively, and where are they now?

A. I think likely there were drawings made—I won't say positively—for the patterns, not for the castings. Patterns were made and castings made from the patterns. I think I made the patterns. I can't tell where they are now. I guess they are destroyed. I think Mr. Gardner made the castings. I can't say where they are now. I made the drawings, if any were made, but I didn't keep them.

429 Q. State whether you made diligent search for any drawing, diagram, or sketch other than the partial plan already produced by you, dated "March, 1886," and with what success relative to the invention in question.

A. I did. I have several times. I found an old diary with a very rough sketch in it. That is all I could find.

430 Q. At whose request did you make this search?

A. I think I have been requested by Mr. Flower and also by Mr. Hill.

431 Q. Have you that diary with you?

A. I have.

432 Q. Please produce it and show us the sketch, first describing the diary itself and the date.

(Same objection as to interrogatory 406.)

211 A. It is what I think you would call a "pocket diary." The title page reads "Daily pocket diary for the year 1865." It is a book I carried right along for the year 1865. I made various memoranda in it. On the page headed "December, Sunday, 3, 1865," is the sketch to which I refer.

433 Q. As to the date, what relation has that to the actual date of the entry of the sketch in the diary?

A. I presume it has not anything to do with it. I don't know. My custom has always been and is now, whenever I am thinking of anything new, to make a sketch of it in such book as I may have in my pocket or am in the habit of carrying.

434 Q. From this sketch and its place in this diary of 1865 do you derive any aid in remembering exactly when you made such sketch?

A. No, I don't; not as to the time, the week, or month; as to the year, yes.

435 Q. What as to the year?

A. It was made in the year 1865; I think during the fall.

436 Q. Whether before or after making the drawing for the experimental hydrant?

A. Before.

By Mr. HILL: I offer in evidence the page of the diary containing the sketch concerning which the witness has testified, and request the examiner to have the same to be photo-lithographed for the purposes of this case.

The examiner marks the page "Exhibit Bailey's Diary Sketch."

437 Q. Are there any other drawings, diagrams, or sketches, made prior to the making of "Exhibit Bailey's Original Model," relative to your said invention now in existence except "Bailey's Partial Plan" and this sketch?

212 A. None to my knowledge.

By Mr. HILL: I offer in evidence the plan heretofore produced, hereinbefore marked "Bailey's Partial Plan," and make the same an exhibit in this cause. It is marked "Exhibit Bailey's Partial Plan."

438 Q. Do you derive any aid from this "Exhibit Bailey's Partial Plan" in fixing the date of the construction of the experimental hydrant aforesaid; if so, what?

A. I remember I had the experimental hydrant made and in operation before warm weather in the spring of 1866, and before I made this plan, I think.

Adjourned at 5 p. m. to 10 a. m., March 6.

Examination resumed March 6, 1884, at 10 a. m.

Cross-examination:

439 C. Q. The thing which you have referred to as an experimental hydrant, and which you have said was made in the fall of 1865 or early winter of that year, was not intended for practical use, was it?

A. It was not intended for use as a fire-hydrant except in a miniature form. It was used practically for sprinkling about the yard and washing castings.

440 C. Q. It was not a hydrant which was intended for practical use, was it?

A. Yes, sir; it was.

441 C. Q. You testify to that positively, do you?

A. I do.

442 C. Q. Was it set in the ground?

A. No, sir.

443 C. Q. How was it rigged in the basement of your shop while it remained in upright position and connected with the penstock of the water-wheel?

213 A. It sat upon the floor or some timber, the peculiar shape of the base being such as to hold it in upright position.

444 C. Q. Did you make any other actual use of this experimental hydrant than to try the cylinder-valve in it and test the operation of such valve?

A. I did. I used it for sprinkling about the shop and yard and for washing castings.

445 C. Q. Well, in doing all that you only had to operate the cylinder-valve so far as the hydrant itself was concerned; is it not so?

A. I had to put a hose onto it to conduct the water to where we wanted it; open the valve whenever we wanted to put the water on, and to close it whenever we wanted to shut it off.

446 C. Q. Have you now mentioned all the uses to which you put this experimental hydrant and all that you did with it practically?

A. All the uses that I remember of. I used to take it apart and put it together to test the efficacy of the valve and its operations.

447 C. Q. What was the tin model spoken of from which you say you got the idea of a cylinder-valve?

A. It was for a gate to a water-wheel.

448 C. Q. And did it have a cylinder-valve?

A. It did, valve or gate.

449 C. Q. Where do Wm. Spaulding, J. E. Ferguson, Charles R. Penfield, and the Trevor Bros., mentioned by you in answer to interrogatory 424, now reside, or where did each of them last reside, to your knowledge?

A. Wm. Spaulding resides in Lockport; C. R. Penfield resides in Lockport; one of the Trevor brothers resides in Lockport; one resides in Detroit, Michigan; J. E. Ferguson resides in Owosso, Michigan.

214 450 C. Q. When did you make the search which resulted in your finding the diary of 1865 produced by you?

A. It was about three weeks ago; it was on Sunday.

451 C. Q. Where did you find it?

A. I found it in a small drawer in a bureau in my house at Owosso.

452 C. Q. This diary is divided up so as to give space for three days on each page, is it not?

A. Yes, sir.

453 C. Q. Please now examine it and state upon how many spaces allotted to the days in December, 1865, there appear any entries whatever.

A. I find eight spaces in which there are marks of different kinds made.

454 C. Q. Name the dates of those spaces and state what appears upon each.

A. Sunday, December 3, 1865, appears the sketch to which I have already referred, and the word "hydrant" written after it; Friday, the 8th, the word "lecture;" Monday, the 11th, the word "comp;" Thursday, the 21st, the word "lecture;" Saturday, the 23d, "Put in gates for Woolen Co. Hope they will work;" Monday, the 25th,

the word "comp;" Sunday, the 31st, which I should say was meant for 16 weeks, the figures one (1) and six (6) and the word "weeks." Figures "20," space immediately following without any date figures:

5541.56
20.

61.56

455 C. Q. Then, when you produced this diary yesterday,
215 there were twenty-four blank spaces allotted to as many days in December, 1865, and only seven such spaces in which anything was written or drawn; is it so?

A. I shall say it was.

456 C. Q. And are the spaces allotted to the days of the six months preceding December, 1865, any better filled than those of the latter month?

A. I should say they were about the same, without counting.

Redirect examination:

457 Q. From the time of receiving letters patent No. 75344 did you ever see a hydrant manufactured by Samuel R. C. Mathews with a loose case substantially like "Exhibit Bailey's Original Model?"

A. I don't think I ever did.

458 Q. Were any of that character manufactured in the city of Lockport from 1868 to 1870 that you know of or saw?

A. Not to my recollection.

459 Q. When, where and how did you first learn that the said Mathews was engaged in the manufacture of hydrants with a loose case at the city of Philadelphia?

A. I think it was some time in the winter of 1874–75, or in the spring of 1875, at the city of Saginaw, I think. I was informed by the engineer of the Saginaw city water-works, Fred. Clifton. He told me that Mr. Mathews had forbidden them from using any other hydrant than the Race & Mathews hydrant, manufactured by R. D. Wood & Co., and at that time I learned that Mr. Mathews was in Philadelphia.

460 Q. What did you learn at that time about Mr. Race, if anything?

A. I don't think I learned anything about him.

216 461 Q. Or at any other time?

A. I had heard some way—I couldn't say how nor where—that Mr. Race was dead.

462 Q. Do you know when Messrs. Race & Mathews left Lockport, N. Y.?

A. No, sir.

463 Q. Do you remember the last time you saw either of them at Lockport, as near as you can state?

A. My recollection is it was somewhere in 1868 or 1869, but I may be in error about that.

464 Q. From that time down to your interview with the engineer of the water-works at Saginaw had you any information whatever of any kind as to the whereabouts of said Mathews or Race?

A. I think not. I have no recollection of any.

465 Q. When, where, and how did you learn that James Flower & Brothers, of Detroit, plaintiffs in this suit, were engaged in the manufacture of hydrants?

A. At the time of my visit to Saginaw that I spoke of having a conversation with Mr. Clifton I saw their lithograph chart hanging upon the walls of the engine-room.

466 Q. After this when did you first have an interview with James Flower or either of his brothers relative to the matter of hydrants? State the first time you ever saw him, or either of them, as near as you can remember.

A. My recollection is the first time I ever saw Mr. James Flower was the occasion of my visit at Cleveland to meet Mr. Flower. It was some time during the winter of 1875–1876, or spring of 1876.

467 Q. You had some correspondence with him, did you not?

A. I had.

468 Q. How did that begin?

217 A. I think after I was at Saginaw; at that time I took their address from this lithograph, and very soon after my return home I wrote to them upon the subject of hydrants. I should say this is the first letter I wrote them.

By Mr. HILL: We offer the letter in evidence, dated Lockport, N. Y., Nov. 3, 1875, from T. R. Bailey to James Flower & Bro., Detroit, Mich., marked "Exhibit Bailey-Flower Letter No. 1."

469 Q. You received a reply to this letter, did you not?

A. I am positive I did.

470 Q. What was the result of that correspondence?

A. I find here a contract written by myself, presented to me this morning by Mr. Hill, which followed the writing of the letter just presented here, and probably some other letters.

By Mr. HILL: We offer in evidence this contract referred to by witness, dated Lockport, N. Y., January 7, 1876, signed T. R. Bailey, marked "Exhibit Bailey-Flower Contract."

471 Q. State whether or not, from the date of receiving your original letters patent down to the making of this contract with Flower Bros., you had any information, and, if so, what, that any parties were making hydrants substantially like "Exhibit Bailey's Original Model," other than what you learned at Saginaw, as you have already stated.

A. I have none.

472 Q. You were interrogated as to a conversation between yourself and Samuel R. C. Mathews, in which you stated that he asked you to enter or make a disclaimer; what particular part of your invention did he specify on that occasion as being his?

218 (Objected to as inadmissible because already gone into in the examination-in-chief, and not opened by the cross-examination.)

A. I don't think he specified any particular part. I think that it was a kind of a general disclaimer he wanted me to enter.

473 Q. When you learned that the said Mathews had notified the mayor of the city of Lockport, Mr. Brown, that the hydrants which you had manufactured for the use of that city were infringements upon Race & Mathews' invention or inventions, did you know then, or had you any intimation from any source, that they had a patent embracing the loose case as shown in the hydrants which you had then manufactured?

A. I don't think I had.

474 Q. You understood then, did you not, that the claims of Mr. Mathews to Mr. Brown, the mayor, of infringements as to the hydrants of your manufacture were embraced in letters patent already issued to them at that time?

(Objected to as leading.)

A. My recollection of it is that what he claimed was infringed was on the patent granted in 1858.

475 Q. At that time had you ever seen any other hydrants than those manufactured by you having a loose case substantially like yours?

A. I think not.

476 Q. You have stated upon cross-examination, I think, that from the date of your letters patent for some time you took steps to introduce your hydrants into the market other than the manufacture of the number made for use by the city of Lockport. Please state as near as you can remember what you did in that respect?

219 A. We advertised them in a catalogue we got out; also advertised the patent for sale in the Scientific American, and I think in one or two other papers.

477 Q. State whether or not you held yourself ready to fill orders for hydrants manufactured according to your invention during all the period from the date of your letters patent down to your contract with Flower Bros.; if yea, state what facilities you had for filling such orders.

A. We did; we had a machine-shop in which we had lathes and other tools suitable for the manufacture of hydrants.

478 Q. You have already stated, I think, that you had the patterns. State whether you were prepared during all this time to manufacture hydrants according to your invention to fill such orders.

A. We were.

479 Q. You have been interrogated as to letters written by you to Mr. Gleason. Please examine this paper and see if it refreshes your memory in any way in regard to that correspondence.

A. It does not; it is entirely gone from me.

By Mr. HILL: Letter purporting to be dated Erie, Pa., April 28, '76, signed J. M. Gleason, marked for identification only "Gleason-Bailey Letter." Counsel for defendants notifies counsel for plaintiffs

that at the examination of Jared M. Gleason, which is intended in the course of putting in defendants' evidence, he shall call for the production of this letter.

480 Q. Please look at "Exhibit Bailey's Original Model," and state in what condition you now find it.

A. I find it all taken apart.

481 Q. After it was produced here in your direct examination what was its then condition?

220 A. As far as I was able to judge it was in the same condition as it was when I gave it to Mr. Flower.

482 Q. From the time when you made the same and its mate down to the time when you delivered it to Mr. James Flower you have stated, I think, that it was in your possession. State whether or not you ever altered it in any way or manner; and, if so, how, when, and where?

A. I never did alter it.

483 Q. When, to your knowledge, for the first time were the bushings in the base taken out, and by whom?

A. Yesterday or day before; by Mr. Roberts.

484 Q. I now hand you the several parts of the hydrant with the washers, and ask if you can put the same together again as it was when produced here?

A. I can do it if the party who took it apart can tell me where those washers came from.

485 Q. How many washers have you here?

A. Five leather washers.

486 Q. You have already stated that according to your specifications in either the original or reissue three washers are required at least; taking now the base and the ring-nut M, see if you find the washer there which belongs between the two.

(Objected to as stating what the witness has not testified and what the specifications do not, in fact, show.)

A. There seems to be two washers adapted for that particular place.

487 Q. Please put them on and return it to its place.

Adjourned at 1 until 2 p. m.

Redirect examination resumed at 2 p. m.

A. I have done so.

488 Q. Please state whether you have since the adjourn-

221 ment succeeded in putting the "Exhibit Bailey's Original Model" together, and whether or not it is in the state, substantially, that it was when you first produced it here.

A. I have, and it is.

489 Q. You found a place for the five washers. State whether or not they are now in place, and whether or not they are the ones which you originally put there when you made the model.

A. They are, and I believe them to be the same except the one immediately under the stock of the hydrant and on top of the ring-

nut. In taking the hydrant apart the piece of packing last referred to often drops out, is liable to be lost, and would have to be replaced if lost, and has been so replaced several times.

490 Q. You have been interrogated as to your interest in this cause and have answered that you had no pecuniary interest in it; what other, if any, interest have you in the litigation?

A. The only interest would be a natural desire or pride to have the patent sustained, believing that I am the original inventor of the device secured by it.

Cross-examination resumed:

491 C. Q. Was the letter shown you at the time interrogatory 479 was asked and marked for identification "Gleason-Bailey Letter" among the papers which you found in your possession and delivered to Mr. Flower or Mr. Hill?

A. I don't know. I have no recollection of ever seeing it before to-day.

492 C. Q. What is your belief as to how Mr. Hill came to have it when he first showed it to you?

A. I believe Mr. Flower gave it to him.

222 493 C. Q. And how do you suppose Mr. Flower came by it?

A. I suppose he must have got it from me some way, from the fact that he presents such a letter.

494 C. Q. You refer, in answer to interrogatory 476, to a catalogue you got out advertising your hydrant; was it an illustrated catalogue and did it contain any wood-cut or other picture showing such hydrant or its construction?

A. To all of the question before and including "illustrated catalogue," I would answer yes; to the balance of the question, no.

495 C. Q. In answer to interrogatory 470 you refer to a contract which has been put in evidence as "Exhibit Bailey, Flower Contract." This contract provides for an exclusive license to Flower Bros. at a royalty of one dollar for each and every hydrant, with a reservation of the right to manufacture yourself; was this the contract actually entered into by you and Flower Bros., or was a different contract made?

A. This contract never was entered into. The contract entered into was the selling to them the exclusive patent as represented by this paper—"Exhibit Bailey Assignment."

496 C. Q. During the time that your hydrants lay upon the ground in the city of Lockport near where it had been expected to set them, did you ever view them there and look at the hydrants which had been set in the places where your hydrants had been intended to go?

A. I don't know whether I ever did or not. I probably have seen them hundreds of times.

497 C. Q. If the Race & Mathews hydrants, with loose cases having end play and having their upper ends upon the outside of
223 the hydrant stock so that they could be seen, were in fact the very hydrants which were set in the places where your hydrants had been intended to go, do you think you would have failed

to see them before your hydrants had been finally taken away from off the ground where they had lain so long?

(Objected to as incompetent.)

A. It is a fact, although I may have seen the hydrants hundreds of times, I do not know whether they were made by the Holly Company or Race & Mathews.

498 C. Q. You mean, do you not, that you did know of whose manufacture those hydrants were when you saw them, but that you have now forgotten about it?

A. If I ever saw the hydrants I would have known whose make they were, but I have no remembrance of whose make they were.

Direct examination resumed:

499 C. Q. You mean, when you say that the agreement of January 7, 1876, was never entered into, that Flower Bros. never manufactured any hydrants under it, do you not?

(Objected to as leading.)

A. I suppose yes would answer as well as anything for that.

THOMAS R. BAILEY.

JAMES E. FERGUSON, a witness produced by the plaintiffs, being first duly sworn, deposes and says:

1 Q. What is your name, age, and occupation and residence?

A. Name, James E. Ferguson; age, 45 years; occupation, machinist; residence, Owosso, Mich. I have resided there eleven
224 months. Before that I resided at Lockport, N. Y. I was born there and resided there twenty-nine years, and in the town of Cambria eight years; afterwards I went back to Lockport and remained there until I went to Owosso.

2 Q. How long have you been a machinist?

A. Since 1865. I learned my trade with T. R. Bailey, the gentleman who has just testified in this case.

3 Q. How long have you known him?

A. About thirty or thirty-five years. We are brothers-in-law. He married my sister.

4 Q. State whether you know one Washburn Race, where he resided when you knew him, and what was his occupation.

A. I knew him by sight only at Lockport, N. Y., from 1865 up to the time he left there. He, with Samuel R. C. Mathews, carried on a machine-shop there during all that time.

Q. Did you know Mr. Mathews?

A. I did by sight.

6 Q. Do you know the plaintiffs, James Flower & Bros., of Detroit; if yea, how long have you known them?

A. I know them and have known them for one week—since I have been called to Detroit as a witness in this case.

7 Q. Where were you, and in what business were you engaged, and for whom, during the year 1865?

A. In Lockport, N. Y., as a machinist for T. R. Bailey & Son—that is, I suppose that is the firm composed of T. R. Bailey, the father, and T. R. Bailey, the son; the latter the witness in this cause.

8 Q. Please examine the brown model of a hydrant before you and state whether or not you ever saw it before; and, if yea, where and when, as near as you can now remember, and state how, if you do so recognize it.

225 By Mr. HILL: I refer to "Exhibit Bailey's Original Model."

A. I have seen it before at Lockport, N. Y., at the place of business of T. R. Bailey, at the time of its construction, in the winter of 1866–'67 or spring of 1867, and I recognize it from the general outside appearance—the paint mostly.

9 Q. Why do you mention the paint upon it as being a means by which you identify it or recognize it?

A. From the fact that I saw it when it was first painted.

10 Q. State whether or not that is the only model of that kind which you then saw, and, if not, how many did you see at that time?

A. I saw one besides that.

11 Q. State whether you examined them at that time carefully?

A. I did, the outside.

12 Q. State whether you ever saw a hydrant constructed substantially like this model; and, if so, where and when did you first see it?

A. I have seen one at the place of business of Mr. Bailey in the year 1867.

13 Q. Was this the first hydrant you ever saw constructed in that manner?

A. It was.

14 Q. State whether or not you saw an experimental model or small hydrant constructed like that model; if so, where and when?

(Objected to as leading.)

A. I did see one, with the exception that this loose case would slide farther up, constructed in the shop of T. R. Bailey, placed in the basement of Trevor Bros.' building in the winter of 1865.

15 Q. How do you fix that date?

226 A. Because that was the first year that I worked at the business.

16 Q. You mean as a machinist, of course?

A. Yes, sir.

17 Q. State whether or not this hydrant was set up and in operation; and, if so, state the circumstances which enable you to recall the fact.

A. It was set up and in operation; I used to use it to wash castings with in the summer of 1866.

18 Q. Please give its general dimensions, and describe its connections as near as you can remember.

A. It stood about 2½ to 3 feet high; about 4 or 4½ inches in diameter. The connection I don't remember anything about, except

that it was connected to a trunk there through which the water came from the race to the water-wheel.

19 Q. State whether or not, and, if so, when, you saw patterns and castings for hydrants of that construction in the shop of T. R. Bailey & Son, or T. R. Bailey's Sons, at Lockport, N. Y.

A. I saw them at T. R. Bailey's Sons then.

20 Q. When?

A. In the year 1867.

21 Q. State whether you ever saw a full size hydrant of that construction set in the ground at Lockport; and, if so, when you first saw it, and where it was located.

A. I did; on Transit street near High street; I don't remember whether it was in 1867 or 1868.

22 Q. State whether or not you saw other hydrants of that construction in the city of Lockport; and, if so, state when you saw the same, and if you know state for what purpose they were constructed.

A. I did see others constructed there, but I don't remember for what purpose; I couldn't say whether it was in 1867 or 1868.

227 23 Q. State exactly when it was as near as you can remember, and how you fix the date.

A. It was either in the winter of 1867–'68 or spring of 1868; I fix the date from a fire which they had near; it was either in the spring or fall.

24 Q. By whom, if you know, were these hydrants which you saw manufactured, and where?

A. They were manufactured by the Bailey Sons at their shop, Lockport, N. Y.

25 Q. State whether or not hydrants were manufactured by Race & Mathews at their shops; and, if so, were they not of similar construction about that time.

(Objected to as leading and as without foundation, showing the witness to have any acquaintance with the subject inquired about.)

A. They did construct hydrants at this time; I never saw anything like them of their manufacture.

26 Q. Were you familiar with the construction of the hydrants which Race & Mathews were manufacturing at that time in Lockport? And, if so, state your means of knowing such facts.

A. I was; my means of knowing was from passing by the shop; seeing them piled outside of the shop and in the shop.

Cross-examination:

27 C. Q. Had you ever worked at the machinist's trade before you were employed by T. R. Bailey, Sr., or the firm of which he was a member?

A. I had.

28 C. Q. When do you say you were first employed by T. R. Bailey, Sr., or his firm?

A. In May, 1865.

228 29 C. Q. And how long did you continue to be employed in that shop by T. R. Bailey, Sr., and his firm and the successors to his firm?

A. Until the fall of either 1870 or 1871.

30 C. Q. Did you ever afterwards return to work in the same shop, or for T. R. Bailey, Jr., or his firm in Lockport?

A. I did not.

31 C. Q. Then you were employed in that shop continuously for over five or six years, beginning with May, 1865, were you?

A. I was not.

32 C. Q. Well, how continuous was your employment there during that five or six years, beginning with May, 1866?

A. I was there, with exception of some times in the fall, when the coopering was good, they would let me off to work in the cooper-shop five or six weeks. All the rest of the time I worked there at Bailey's shop.

33 C. Q. Did you, during the time of your employment at the Baileys' shop, do any work upon hydrants or models of hydrants?

A. I don't think I did.

34 C. Q. Have you ever in your life worked upon hydrants?

A. Not that I recollect of, any more than washing castings. I might have done that.

35 C. Q. Have you any memoranda in any manner relating to the time when you first saw the models like "Exhibit Bailey's Original Model," or the hydrants constructed like them, or the experimental hydrant with which you washed castings, as testified by you?

A. I have not.

229 36 C. Q. The dates which you have given, then, in relation to the things enumerated in the last preceding interrogatory are given upon your bare and unaided memory, are they?

A. Aided by some circumstances.

37 C. Q. But you rely upon your bare and unaided memory, do you not, in fixing the date of those circumstances?

A. Yes, sir.

38 C. Q. How near have you lived to your brother-in-law, Mr. T. R. Bailey, since you went to Owosso, about eleven months ago?

A. I boarded with him from April up to September; since that time I have lived about half a mile from him.

39 C. Q. How often during your residence in Owosso have you and he talked over this matter of the hydrants, and what happened about them in Lockport between 1865 and 1868?

A. I could not say.

40 C. Q. State as nearly as you can.

A. I never remember but once.

41 C. Q. How lately was that?

A. A week ago last Monday.

42 C. Q. How long have you been in Detroit this time to attend as a witness here?

A. I got here a week ago last night.

43 C. Q. And you have been in your brother-in-law's company from day to day since that time, have you not?

A. I have.

44 C. Q. How much of that time have you been here in attendance while your brother-in-law's examination was going on?

A. The biggest part of the time.

230 45 C. Q. You say, in answer to cross-interrogatory 27, that you had worked at [the] machinist trade before you were employed by T. R. Bailey, Sr., or his firm, and in answer to interrogatory 2 you said that you learned your trade of machinist of T. R. Bailey, the previous witness. Will you please explain this matter a little more fully?

A. I worked for Pitts & Brayley, of Buffalo, for about three months before I went to work for T. R. Bailey, Sr., at Lockport.

JAMES E. FERGUSON.

FRIDAY, *March* 7—10 a. m.

JAMES FLOWER, a witness produced and sworn on the behalf of plaintiffs, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. James Flower; residence, Detroit; age, 66 years; occupation, machinist. Served my time as a mill-wright machinist in England, in a place called Winchester, close to Southampton, Hampshire; I was born there, and commenced work between 8 and 9 years old; I was apprenticed at the age of 14, for seven years, or until I was 21. I came to this country in 1840 or 1841, and came right to Detroit. I am one of the plaintiffs in this suit. George Flower and Thomas Flower, the other plaintiffs, are my brothers. I have resided in Detroit since I came here first.

2 Q. When did you establish yourself in business first in Detroit?

A. 1851 or 1852, I think; the same firm as now—James Flower & Brothers.

3 Q. Do you know Thomas R. Bailey, Jr., a witness who has testified in this case; if yea, where did you first become acquainted with him, and how?

231 A. I know him; the first correspondence we had is this letter—November 3, 1875—received from him (referring to "Exhibit Bailey-Flower Letter No. 1").

4 Q. That letter, it seems, led to considerable correspondence; to what does it relate?

A. It did lead to considerable correspondence between James Flower & Bros. and Mr. Bailey. It relates to a patent issued to T. R. Bailey (referring to "Exhibit Bailey's Original Patent," No. 75344). This is the patent.

5 Q. What was the result of such correspondence?

A. The result was that Mr. Bailey and our firm came to this agreement (referring to "Exhibit Bailey-Flower Contract"), and afterwards to this (referring to "Exhibit Bailey's Assignment").

6 Q. On what day did you receive the assignment in writing from Thomas R. Bailey?

A. I think we received it March 30, 1876.

7 Q. After receiving that assignment, what was the first thing you did in the assertion of your rights under the patent?

A. The first thing we got some circulars printed.

8 Q. Please examine the paper marked "Exhibit Flower Circular," and state whether or not that is one of the copies of the circular to which you refer?

A. Yes; it is.

By Mr. HILL: We offer it in evidence as such exhibit.

9 Q. State what was done with such circulars?

A. The first copy we sent away was sent to Mr. Mathews. We sent copies to all water-works we then knew of in the United States.

10 Q. State whether or not your attention was called to a circular from R. D. Wood & Co., called out by your aforesaid circular; if yea, how, when, where, and by whom.

232 A. It was, by receiving a circular sent up from the fire department office here as soon as they received it, I presume.

11 Q. Please examine the paper now shown you and state whether or not it is one of the copies of R. D. Wood & Co.'s circular to which you refer.

A. I believe it is.

By Mr. HILL: I offer the said paper in evidence, marked "Exhibit R. D. Wood & Co.'s Circular."

12 Q. Why did you send the first copy of your circular to Mr. Mathews?

A. I thought it was right to let him know first, as he had been warning people not to buy hydrants of us.

13 Q. How did you ascertain that fact?

A. A great many people told me so. I don't remember any one in particular.

14 Q. In the contract "Exhibit Bailey-Flower Contract" occurs this provision: "And James Flower & Bros. are to furnish funds for a reissue of my patent free of all expense to me and conduct such proceedings as are necessary to produce such reissue." Please state what rendered said reissue necessary.

(Objected to as inadmissible and incompetent.)

A. I suppose we had to furnish the funds for the reissue. We found that the drawing was the same as that is now (referring to "Exhibit Bailey's Original Model"), with the loose case hard up against the bead on the hydrant, or that drawing shows the same (referring to "Exhibit Bailey's Original Patent, No. 75344"). Then we took advice, and found by that advice that the drawing was not the same as the model in the Patent Office.

15 Q. Whom did you consult relative to this matter?

A. Mr. Leggett, Sr., of Cleveland; Mr. M. D. Leggett, I think, formerly Commissioner of Patents.

233 16 Q. Please examine the paper which I now show you and state what it is and if you recognize it.

A. I do; it is a letter we received from M. D. Leggett & Co., dated January 4, 1876.

By Mr. HILL: I offer this letter in evidence, marked "Exhibit Leggett-Flower Letter."

(Counsel for defendants objects to the letter as inadmissible and incompetent, the same being hearsay of the second order.)

17 Q. State whether or not you informed Mr. Bailey of these facts; and, if so, how long after you learned or was advised of the necessity of a reissue.

A. We informed Mr. Baily right off as soon as we received the letter. I think on his reply we commenced getting out a reissue.

18 Q. Please examine the brown model before you, "Exhibit Bailey's Original Model." State whether you ever saw it before it was produced in evidence here by Mr. Bailey; and, if so, state as near as you can remember when and where you first saw it.

A. I have seen it before. It has been in my possession from the time I bought the patent until we gave it to Mr. Hill a few days ago. I first saw it in Lockport, N. Y. After the purchase of the patent Mr. Bailey pulled this out of a drawer under his desk; then I brought it home with me. I don't know the exact date, but it was when we bought the patent of him.

19 Q. Please examine the same carefully and state whether or not it is now in the same condition that it was when you first saw it.

A. I should say it was, as near as I can see.

20 Q. State whether or not at any time during your consultation with M. D. Leggett & Co. touching the reissue this Bailey's original model was produced or submitted to M. D. Leggett; and, if so, when, where, and by whom.

234 A. It never was produced to him. I did not know of its existence until after the reissue No. 6990.

21 Q. Please examine the model again, and state whether or not you saw it on Tuesday last here, after the packing had been removed therefrom, and when it was put together without such packing, the washers having been taken out.

A. I did.

22 Q. Did you see those washers taken out of this model on that day? If so, state whether or not you ever saw those washers before.

A. I saw them taken out, but I never saw them out before, except the top one, which has to be renewed frequently. People take the model to pieces frequently, and it drops out.

23 Q. How long have you been engaged in the manufacture of hydrants?

A. I think since 1863 or 1864. We made some hydrants then. We never made really a business of it at that time. We made a few from time to time. We went regularly into the business in 1873 or 1874—I wouldn't be certain about the date—and have been continuously engaged in it from that time until now.

24 Q. State how soon after you purchased this invention from Mr. Bailey did you commence to manufacture hydrants under it.

(Objected to as immaterial.)

A. We commenced making the patterns as soon as we bought it.

25 Q. State whether or not you manufactured and sold any hydrants under the said letters patent in the year 1876; and, if so, how many.

(Same objection.)

A. We sold some—I could not say how many.

235 26 Q. From that time or until the present time how many hydrants, embracing the loose case with end play, have the firm of James Flower & Bros. manufactured?

Same objection.

A. I couldn't say; we have never kept a separate hydrant book. It goes through our regular books.

27 Q. Please state in round numbers not less and not more than so many.

(Same objection.)

A. Between eight hundred and one thousand, I should think; that is as near as I can tell.

28 Q. State how they are marked.

(Same objection.)

A. That depends on how the hydrant is made, as we make them different from these, with some of the patents off. There are three or four patents on this hydrant.

Witness refers to a nickel-plated model marked "Exhibit Flower Model," which Mr. Hill offers in evidence, and to which Mr. Roberts objects as immaterial.

29 Q. State whether or not they are all manufactured under the Bailey original and reissue, and are not all so marked.

(Same objection.)

A. They are; all the hydrants we make are so marked.

30 Q. As to the necessity of packing between the base and the stock of the hydrant, as shown by "Exhibit Bailey's Original Model," in the manufacture of hydrants, have you anything to say?

A. I should say they would require packing.

31 Q. How is it, as a matter of fact, in practice?

236 A. There are few hydrants that I know of but what are packed. We make one style of hydrants with metallic packing requiring no leather or rubber. This style (referring to "Exhibit Flower Model") requires either rubber or leather packing between the stock and the foot of the hydrant.

32 Q. Are you acquainted with Samuel R. C. Mathews? If yea, when did you first form his acquaintance, and where?

A. I am; I couldn't say where I formed his acquaintance first nor when. I think I was acquainted with him before we were making hydrants as a business, about 1870 or 1871.

33 Q. Where did he then reside?

A. Philadelphia, I believe.

34 Q. In what business was he engaged?

A. In the same business, I believe, in connection with R. D. Wood & Co. I didn't know him before that.

35 Q. After seeing the circular of which "Exhibit R. D. Wood & Co.'s Circular" is a copy, how soon did you learn that that firm were manufacturing hydrants which you claimed were infringements upon the Bailey patents aforesaid?

A. I knew they were manufacturing the same hydrants before that.

36 Q. How long before?

A. I couldn't say exactly how long; about two or three years before.

37 Q. What steps, if any, after purchasing these patents, and how soon thereafter, did you take towards bringing suit against R. D. Wood & Co. for such infringement?

A. We commenced hunting up matters as regards the patent pretty soon after the purchase of Bailey. We got council to write up the case for us. Mr. M. D. Leggett, of Cleveland, was the one.

237 38 Q. State what led you to delay the commencement of a suit for such infringement against R. D. Wood & Co.

A. I think, if I recollect right, some time in March, 1877, Mr. Samuel R. C. Mathews called at our office here, in the city of Detroit, and stated, as near as I can remember, that he should like for us to stop to see what the issue would be in the Boston case, which I think he said was in the United States court, and if mechanics had any grievances they should settle them by arbitration without coming into the courts.

39 Q. Do you remember what he told you at that time about the situation or status of the Boston case? If so, state it.

A. I do not. I don't remember.

40 Q. What reason did he give for asking you not to begin suit until the Boston case was finished?

A. I don't remember what his reason was now. I can't call it to mind.

41 Q. Who else, if anybody, was present at that interview between you and said Mathews besides you and he.

A. I think my brother George was there; I am sure he was in the office with us.

42 Q. When did you first learn that the Boston case referred to had been decided by the Supreme Court of the United States, and from whom?

A. Last fall, I think, from Mr. Hill.

43 Q. How long before you commenced this suit did you have that information?

A. Not a great while before we prepared to go on with the suit.

By Mr. HILL: I offer in evidence a certified copy of the files of the United States Patent Office of the file-wrapper, contents
238 and drawing, in the matter of the letters patent granted Washburn Race and S. R. C. Mathews, Nov. 16, 1869, No.

96959, marked "Exhibit Race & Mathews Application of Oct. 29, 1868."

Adjourned at 1 until 2 p. m.

At 2 o'clock p. m. examination resumed.

44 Q. Please examine "Exhibit Bailey's Partial Plan" and state when and where you first saw it.

A. I first saw it in Detroit. It was sent to me by Mr. Bailey in a letter stating that he found it amongst old papers, and it was no good to him. The date I don't remember. It was probably two or three months after the purchase.

45 Q. Please examine the same carefully and state whether it is now in substantially the same condition it was when you received it.

A. It is, except the writing put on by the examiner.

46 Q. How as to the date on it—was your attention called to it when you received it?

A. It was. It is the same date—March, 1866.

47 Q. Where has it been all the time since you received it?

A. It has been in my own private cupboard filled with daily papers.

48 Q. Please examine the brass model "Exhibit Defendants' Model," together with the claims in the specifications in "Exhibit Bailey Reissue No. 6990," and state which of these claims you claim are infringed by the hydrants constructed substantially like this model in use here in the city of Detroit.

(Objected to as inadmissible and incompetent, the interpretation of the claims being matters of law for the court, and the witness not being qualified to express an opinion upon matters of fact involved in the comparison asked for.)

239 A. The first claim; also the third claim.

49 Q. Please examine "Exhibit Defendants' Model" and say whether you find therein the five parts specified in the third claim aforesaid.

(Same objection.)

A. I don't find but four there.

50 Q. Name the four parts.

A. I find the stock, loose case, foot, and the valve.

Q. How about the stuffing-box?

A. If they mean that—pointing to the top of the model—the stuffing-box would come in also; but I don't call that a stuffing-box. It is nothing but a gland screwed in to hold the hollow nut. There is no packing used with that. There is no liquid comes near that.

52 Q. How does that compare with the same device as shown in "Exhibit Bailey's Original Model?"

A. In this top—pointing to the top in the Bailey original model—the liquid fills this cap, and there is the same pressure as in the

stock of the hydrant. That would have to be packed, or else the water would leak out of it. In other respects the hollow nut is there with the gland, except that in one we have packing and the other not.

53 Q. State whether or not the devices in the two models, as shown, perform the same function and are equivalents.

(Objected to as leading, and also the same objection as to interrogatory 48.)

A. They do and they are.

54 Q. Please compare the valves in the two models with each other and state whether they perform the same function and are equivalents for each other.

(Same objections.)

A. They do and they are.

240 55 Q. The other parts are identical, are they not?

(Same objections.)

A. Yes, sir.

56 Q. Then you find the five parts in the defendants' model as specified in the third claim of the said reissue, do you not?

(Same objections.)

A. I do.

57 Q. You state that you have manufactured from eight hundred to one thousand hydrants with loose cases substantially like those described in the specifications in "Exhibit Bailey's Reissue" or in the model, "Exhibit Bailey's Original Model." State where you have delivered those hydrants, in a general way.

(Objected to as immaterial.)

A. We have not manufactured any like that "Bailey Original Model." We have manufactured all with loose cases like the model "Exhibit Bailey's Original Model." I can tell a few places. Allegan, Mich.; Madison, Ind.; Michigan City, Ind.; Kalamazoo, Mich.; Bloomington, Ill.; Lansing, Mich.; Ionia, Mich.; Toledo, Ohio; Muskegon, Mich.; Saginaw City, Mich.; Detroit water-works, Detroit, Mich.; Bellevue, Ohio; Winfield, Kansas.

58 Q. Upon each of these hydrants state exactly what marks you have placed thereon and how, if any, to show that they were patented under the Bailey patents.

(Same objections.)

A. They all had the marks as follows: "T. R. Bailey; patented March 10, 1868; reissued March 14, 1876." The date of any of our own patents were added on if any were made that way.

241 Cross-examination:

59 C. Q. Was the "Exhibit Bailey-Flower Contract" acted on in any way except by your paying the expenses of procuring the reissue?

A. It was not, if I understand you right.

60 C. Q. Did you ever see T. R. Bailey before the reissue 6990 was procured?

A. Once, I believe. I think it was at Cleveland the first time I saw him. I won't be certain whether it was at Cleveland or Lockport I saw him first, but I have only seen him three times; once in Cleveland, once in Lockport, and the other time when he came to Detroit and got his money. I haven't seen him from that time until he came here to testify.

61 C. Q. Did you ever make a hydrant with a cylindrical valve like that shown and described in "Exhibit Bailey Reissue No. 6990?".

A. We have not. We have patterns to make them, though, for four-inch hydrants.

62 C. Q. Do you find any such cylindrical valve in the "Exhibit Defendants' Model," or has either of the hydrants in the city of Detroit, to your knowledge, any such cylindrical valve?

A. I think not, as regards the city of Detroit; I don't know. "Exhibit Defendants' Model" has a conical valve, the same as the old Bartholomew hydrant originally had.

63 C. Q. Didn't you write a letter to the clerk of the circuit court of the United States at Boston, Mass., early in the year 1878, and enquire of him how the case of Mathews *et al.* against the Boston Machine Co. stood, and did you not receive a reply from the clerk of that court that the bill of complaint in that case had been dismissed?

242 A. I did. There is his reply.

By Mr. HILL: I offer it in evidence, marked "Exhibit Stetson Letter."

64 C. Q. Didn't you know, in the year 1872, that the City of Detroit procured hydrants of the construction represented by "Exhibit Defendants' Model," and that the same were put to use at that time within that city?

A. No; I don't remember when it was. I remember there were some.

65 C. Q. Were you manufacturing hydrants in the year 1872?

A. I think I said before 1872 or 1873, but not this description of hydrant.

66 C. Q. Were you not sufficiently interested in the subject of hydrants to ascertain as early as 1872 or 1873 what kind of hydrants were being procured and put to use by the City of Detroit?

A. No; I was not enough interested to look after them particularly.

67 C. Q. You have testified, in your direct examination, that you knew R. D. Wood & Co., of Philadelphia, were manufacturing hydrants represented by "Exhibit Defendants' Model" some two or three years before receiving their circular, which bears date April 17, 1876, and is marked "Exhibit R. D. Wood & Co.'s Circular." How did you derive your knowledge of their manufacture?

A. By seeing their bids for pipe and hydrants at different places where they were required, as we were selling valves at the time.

68 C. Q. How early did you know that hydrants of their manufacture were being used in the city of Detroit?

A. I think it was a short time before the letter of Mr. Bailey to me. I think it was a year before; I can't say exactly.

243 69 C. Q. Do you think you knew the fact as early as the year 1874?

A. I should think it was probably about 1874. I was not interested enough to take much notice of hydrants at that time; I was just getting into that business.

70 C. Q. Since 1874 you have known, have you not, that hydrants of R. D. Wood & Co.'s manufacture, of the construction represented by "Exhibit Defendants' Model," have been in use in the city of Detroit continuously?

A. Well, I think they have, because nobody else could get a bid in.

71 C. Q. Do you remember that early in the year 1873, while you were a member of the common council of the city of Detroit, you offered a resolution providing, among other things, that the board of water commissioners and the fire commission be notified to send to the council monthly statements of the books of their offices, and that the monthly statements so received be published monthly with the common council proceedings, and that such resolutions were adopted?

A. I don't remember now about it; probably I might have done so.

72 C. Q. Do you remember that since that time the acts of the board of water commissioners and of the fire commission have been published periodically, so as to be readily accessible to the citizens of Detroit, and so as to make it easy for any one who so wished to inform himself as to the number of hydrants procured for the city, and from whom procured?

A. I know the water-works do, for they send me one every year. They sent me one a few days ago. As regards the fire department, I have not seen one that I know of for several years; not one of their reports.

244 73 C. Q. Did you not know in the year 1876, about the time you bought the reissue in suit, that many hydrants constructed as represented by "Exhibit Defendants' Model," and manufactured by R. D. Wood & Co., were in use in the principal streets of the city of Detroit?

A. I knew there were some.

74 C. Q. If, as a matter of fact, there were over three hundred such hydrants in use in the city of Detroit, what proportion of that number did you know of at that time, either from seeing them or from examination of the published reports concerning them?

A. I could not say.

75 C. Q. State to the best of your remembrance and belief.

A. I never went around to count them; I saw some; I couldn't say how many.

76 C. Q. Since you have owned the Bailey reissue No. 6990, you have known, have you not, that from year to year hydrants con-

structed as represented by "Exhibit Defendants' Model," and manufactured by R. D. Wood & Co., have been added to the number in use in the city of Detroit?

A. I have by the fire department breaking the city charter by not advertising for bids, as the old charter called for. They have been bought without giving other parties a chance to bid.

77 C. Q. Have you taken any pains to ascertain how many such hydrants of such construction and manufacture have been procured in all and put to use in the city of Detroit?

A. I have not.

78 C. Q. You could readily have done so, could you not, at any time during the last eight years?

A. I don't know.

245 79 C. Q. Have you been a member of the common council, and not have found out that you could have readily obtained the information mentioned in the last preceding interrogatory if you had so chosen?

(Objected to as immaterial and unimportant.)

A. It is a good many years ago that I was a member of the common council. I don't know what they do in it now. I don't know whether they would have given me the information if I had called at the office, and that is the only place I know of where I could get it.

80 C. Q. Well, you have known, have you not, that during the interval between 1876 and 1881, hydrants of R. D. Wood & Co.'s manufacture were set already for use on Jefferson avenue, Brush and Atwater streets, within sight of your shop?

A. I don't know but what they might have been. I have not taken particular notice of them. I don't know whether they have or not.

81 C. Q. It has been a matter of indifference, has it, so far as you have been concerned, whether R. D. Wood & Co.'s hydrants have been set ready for use in the streets in the city of Detroit during the last eight years or so?

A. Not exactly a matter of indifference. My time is taken up at the shop from half after six in the morning until nine at night, and I have very little time to run around in the day time, and that is the reason they may have been set without my seeing them.

82 C. Q. You made some hydrants, did you not, before you ever corresponded with T. R. Bailey, having loose cases with end play?

A. I think we did—taper-joint hydrants.

83 C. Q. And you found out before such correspondence
246 that R. D. Wood & Co. or Mr. Samuel R. C. Matthews had a patent for such a loose case with end play, did you not?

A. He claimed he had. That is all we knew. We did not find out whether he had or not.

Direct examination resumed:

84 Q. When you say that the said Mathews claimed he had a patent, please state further in that connection where and when, and

how often, you have heard him make such claim, and the circumstances under which he made the same?

A. I think the first time I heard him make that claim was at Muskegon, when they let out their water-works bid there, ten or twelve years ago. He notified the members of the water board that he would sue other parties who put in a hydrant with a loose case.

85 Q. That is one time; now give another.

A. I could give almost any place I have met him where there were bids to be let out. He has made the same claim every time. Sometimes he was going to sue me, and others have told me the same, that he claimed we were infringing on his patent, and they would be sued if they use the Bailey patent hydrant.

86 Q. Name some of those places?

A. The last time he spoke about suing was in Hamilton, Ohio, last spring. He told me as soon as the case was decided in his favor in the United States Supreme Court that he should stop every one from using loose frost cases.

Adjourned at 5 p. m. until March 8, at 10 a. m.

MARCH 8—10 a. m.

Direct examination continued.

87 Q. Then I understand you to say that you have met
247 Mr. Mathews repeatedly and in different places since you commenced to manufacture hydrants with loose cases upon them, and that he had claimed as often that you were infringing his patent for substantially the same device; am I correct?

(Objected to as leading.)

A. You are.

88 Q. For what purpose were you and he present so as to meet at such places generally?

A. Giving in bids to new water-works for hydrants and valves.

89 Q. In regard to the "Exhibit Flower Circular," you stated that they were sent out shortly after date, which is March 31, 1876. Please state now, if you can, more definitely and particularly, where they were sent and when sent, respectively.

A. They were sent within a few days of that. I have a list here of the places to which they were sent, with the dates of sending the same.

April 3, 1876.—R. D. Wood & Co., Philadelphia, Pa.; Boston Machine Co., Boston, Mass.; Detroit fire commissioners, city.

April 4.—G. C. Morgan, Chicago, Ill.; sup't Hyde Park, W. W., Ill.; sup't Lake View, Ill.; Crane & Co., Ill.; board [of] public works, Chicago, Ill.; Mr. Gregier, eng'r, Chicago; Mr. Lane, eng'r, Milwaukee, Wis.; C. A. Chappen, Chicago, Ill.

April 8.—Michigan.—Port Huron, Bay City, East Saginaw, Saginaw City, Grand Rapids, Marquette, Kalamazoo, Jackson.

Ohio.—Canton, Toledo, Chillicothe, Cincinnati, Columbus, Sandusky, Dayton, Delaware, Hamilton, Lima, Mansfield, Napoleon, Norwalk, Painesville, Portsmouth, Salem, Springfield, Steubenville, Tiffin, Youngstown, Zanesville.

248 Indiana.—Evansville, Goshen, Indianapolis, Lafayette, Logansport, Madison, Michigan City, New Albany, South Bend, Terre Haute, Valparaiso.

Illinois.—Alton, Aurora, Belleville, Belvidere, Bloomington, Cairo, Canton, Champaign City, Danville, Decatur, Elgin, Freeport, Fulton City, Galesburg, Jacksonville, Joliet, La Salle, Mason City, Ottawa, Pekin, Peoria, Quincy, Rockford, Rock Island, Springfield.

Iowa.—Burlington, Cedar Rapids, Council Bluffs, Davenport, Des Moines, Dubuque.

Missouri.—Kansas City.

Kentucky.—Covington, Newport, Louisville, Dennis Long & Co.

Louisiana.—New Orleans.

New York.—Albany, Auburn, Brooklyn, Buffalo, New York, Syracuse, Troy, Yonkers.

Massachusetts.—Cambridge, Lowell, Lynn, New Bedford, Salem, Somerville, Springfield, Worcester.

New Hampshire.—Concord, Manchester.

Connecticut.—Hartford, New Haven.

New Jersey.—Jersey City.

Tennessee.—Memphis.

Rhode Island.—Providence.

Maine.—Portland.

Ontario.—Montreal, New London, Toronto.

Pennsylvania.—Pittsburgh, Philadelphia; W. W. Harding, Philadelphia, Pa.

C. F. Rapp, Cincinnati, Ohio; Carroll C. Gray, St. Louis, Mo.; Michael Folliard, Brooklyn, N. Y.; Wm. T. Travis, Flatbush, N. Y.; S. W. Lewis, Cincinnati, Ohio; R. T. H. Stellman, Philadelphia, Pa.; Charles S. Glover, Bay City, Mich.; Baltimore, Md.

Alabama.—Monticello, Mobile, Selma, Tuscaloosa.

Arkansas.—Little Rock.

249 California.—Los Angeles, Marysville, Napa City, Oakland, Sacramento, San Francisco, San Jose, Stockton.

Colorado.—Boulder City, Denver.

Dakota.—Yankton.

Delaware.—New Castle City, Dover, Smyrna, Wilmington.

District of Columbia.—Georgetown.

Florida.—Jacksonville.

Georgia.—Atlanta, Augusta, Columbus, Macon, Savannah.

Kentucky.—Bowenville, Frankfort, Henderson, Lexington, Maysville, Owensborough, Paducah, Paris.

Louisiana.—Baton Rouge, New Orleans, Shreveport.

Maryland.—Annapolis, Baltimore, Cumberland, Frederick, Hagerstown, Havre de Grace, Westminister.

Minnesota.—Faribault, Minneapolis, Mankato, Rochester, Red Wing, St. Paul.

Mississippi.—Natchez, Vicksburg.

Missouri.—Mr. Allan, St. Louis; Hannibal.

Nebraska.—Omaha.

Nevada.—Virginia City.

New York.—Oswego, Rochester.

North Carolina.—Wilmington.

Ohio.—Akron.

Oregon.—Portland.

Pennsylvania.—Allegheny, Allentown, Altoona, Ashland, Bellefontaine, Bethlehem, Carlisle, Carbondale, Chambersburg, Chester, Coopersville, Columbia, Danville, Canton, Erie, Franklin, Harrisburg, Hazelton, Hollidaysburg, Huntington, Johnstown, Lancaster, Lebanon, Lewiston, Lockhaven, McKeesport, Mahoning City, Mead-
250 ville, Milroy, Minersville, Mountjoy, New Castle, Norristown, Oil City, Pottstown, Pottsville, Reading, Scranton, Sharon, Shamokin, Sunbury, Tamaqua, Titusville, Westchester, Wilkes Barre, Williamsport, York.

South Carolina.—Charleston.

Tennessee.—Chattanooga, Nashville, Memphis.

Texas.—Austin.

Virginia.—Alexandria, Norfolk, Peterborough, Richmond.

West Virginia.—Wheeling.

Wisconsin.—Fond du Lac, Madison, Racine.

New York.—New York city, Albany, Albion, Amsterdam, Auburn, Ballston, Batavia, Binghampton, Brockport, Brooklyn, Buffalo, Camden, Canandaigua, Catskill, Coshocton, Dansville.

April 10.—Dunkirk, Elmira, Flushing, Geneva, Gloversville, Goshen, Greenbush, Haverstraw, Hornellsville, Hudson, Ithaca, Jamestown, Johnstown, Kingston, Lyons, Medina, Mount Vernon, Newburgh, Niagara Falls, Ogdensburg, Oswego, Palmyra, Port Jarvis, Poughkeepsie, Rochester, Rome, Saratoga Springs, Schenectady, Seneca Falls, Sinclairville, Syracuse, Tonawanda, Troy, Utica, T. Hopper, agent; T. W. Chrissy, Troy; H. G. Ludlow, Troy; Watertown, Waterloo, Platt, Jr., Waterford.

Alabama.—Montgomery, Selma.

California.—Oakland.

Connecticut.—Bridgeport, Danbury, Hartford, Meriden, Middletown, New Britain, New Haven, Norwalk, Norwich, Stamford, Waterbury, Winchester.

District of Columbia.—Washington.

Iowa.—Keokuk, Lansing, Lyons, Marshalltown, Marshall, Mount Pleasant, Muscatine, Ottumwa, Sioux City, Waterloo.

Kansas.—Leavenworth City, Topeka.

251 Maine.—Augusta, Bangor, Bath, Biddeford, Calais, Gardiner, Lewiston, Portland, Rockland, Saco, Skowhegan, Waterville.

Massachusetts.—Adams, North Adams, Amesbury, Athol Centre, Attleborough, Barnstable, Beverly, Boston (2), Brockton, Cambridge, Chelsea, Fall River, Fitchburg, Gloucester, Greenfield, Haverhill, Holyoke, Hyde Park, Lawrence, Lancaster, Lowell, Lynn, Marblehead, Marlborough, Middleton, Nantucket, Nantuck, New Bedford, Newburyport, Newton, Northampton, Peabody, Pittsfield, Plymouth, Princtown, Quincy, Rockport, Salem, Springfield, Stoneham, Stoughton, Taunton, Wakefield, Waltham, Ware, Westfield, Weymouth, Winchendon, Woburn, Worcester (2).

New Hampshire.—Claremont, Concord, Dover, Exeter, Keene, Laconia, Manchester, Nashua, Portsmouth, Rochester, Somersworth.

April 13.—New Jersey.—Atlantic City, Bordentown, Bridgeton, Burlington, Camden, Elizabeth, Hoboken, Hackensack, Gloucester, Highstown, Jersey City, Key Port, Long Branch, Millville, Morristown, Mount Holly, Newark, New Brunswick, Orange, Patterson, Perth Amboy, Princeton, Plainfield, Rahway, Redbank, Salem, Sommerville, Trenton, Vineland, Woodbridge.

Pennsylvania.—Bristol, Butler, Clearfield, Conneautville, Corry, Greenburg, Honesdale, Kittanning, Mechanicsburg, Milton, Newbright, Parker's Landing, Rochester, Pittsburgh, Schuylkill Haven, Shippingsburgh, St. Clair, Stroudsburg, Tonawanda, Tyrone, Union City, Washington, Warren.

Rhode Island.—Bristol, Newport Manufacturing Co., East Greenwich, Johnston, Lincoln, Newport, Pawtucket, Providence, Warren, Westerly, Woonsocket.

252 Vermont.—Bennington, Brattleborough, Burlington, Montpelier, South Royalton, St. Albans, Johnsbury, Vergennes, Woonsocket.

Gloucester Pipe Works, Jersey City; Warden & Tricker, Cincinnati; Cummings & Son, Cincinnati.

June 16, 1876.—Chapman Valve Co., Kelly street, Boston, Mass.

July 28.—P. Whitty, city engineer, Houston, Texas; board of trustees, Marion, Ind.; Shelby Iron Co., Shelby, Ala.; Jas. Sweitzer, Marion, Grant Co., Ind.; J. D. Cook, C. E., Toledo, O.; Low & Harlow, C. E., 9 Pemberton Square, Boston, Mass.; Evans, Delzell & Co., Pittsburgh, Pa.; National Tube Works Co., McKeesport, Boston, Mass.; Ludlow Valve Co., Troy, N. Y.; Pete Valve Co., Boston, Mass.; Mohawk & Hudson Manufacturing Co., Waterford, N. Y.; Armstrong & Hutchinson, Allegheny, Pa.; H. R. Worthington, 61 Beekman street; McNeals & Archer Pipe Works, Burlington, N. J.

90 Q. How were these circulars sent?

A. By mail, postage paid, except one, which was left personally at the fire commissioners' office in Detroit.

91 Q. In regard to the action of the cylindrical valve in the Bailey patent, "Exhibit Bailey Original Model," as compared with the conical valve in "Exhibit Defendants' Model," and the hydrants thus constructed, respectively, have you anything further to say?

A. The operation of the cylindrical valve to let water into the stock of the hydrant is by raising the valve up; to let water into the hydrant with a conical valve is by screwing the valve down. They both answer the same purpose, except the modes of opening and closing are different.

253 92 Q. How happened you to write a letter to Mr. Stetson, clerk of the United States court at Boston, to which "Exhibit Stetson Letter" is, as you have said, an answer?

A. I think it was to find out what the case was thrown out of court for. We never found that out.

93 Q. What other steps, if any, did you take, either before or after receiving this letter, to find out the attitude of the litigation in Boston between Mr. Mathews and others and the Boston Machine Co.?

A. I think I inquired of Mr. Carr, who was, I believe, the superintendent of the Boston Machine Co., at two different times when in Boston. He gave me no information on the subject whatever.

94 Q. Please look at the brown model before you, "Exhibit Bailey Original Model," as well as the "Exhibit Defendants' Model" and the "Exhibit Flower Model," and state whether or not it is correct to say that the loose case is now flush with the flange or bead on the stock of each.

(Objected to as immaterial.)

A. It is a mechanical term. When anything is driven clear up as far as it can go it is "flush," the same as these three loose cases are now.

95 Q. In constructing models of this character what is the proportion of the parts of the model, relatively, to that of the manufactured article?

(Objected to, as far as relates to "Exhibit Bailey's Original Model," which this witness did not construct, and as to which his testimony on this point is inadmissible and incompetent.)

A. In making my own models I have never looked after any relative proportion as long as it shows the device properly and the model comes within the ruling of the Patent Office as regards size.

254 96 Q. You have taken out letters patent for articles of manufacture in your line of business when you have furnished models with drawings and specifications, have you not? If so, how many, as near as you can remember?

A. I have taken them out both with models and without; eight or ten with models, drawings, and specifications.

97 Q. When you commenced to manufacture hydrants as a business in 1872 or 1873, as you have stated, of what construction were the hydrants then used in the city of Detroit other than those manufactured by R. D. Wood & Co.?

A. I think they were the old Bartholomew hydrants principally; at least, I don't remember any other.

98 Q. Have you a model of hydrants of that construction?

A. I have. I think that is about as near as I can get it. It may not be in exact proportion, but the principles are the same.

By Mr. HILL: I offer this in evidence, marked "Exhibit Old Bartholomew Hydrant."

(Mr. Roberts objects to its introduction as immaterial and irrelevant to the issue in this cause.)

99 Q. State whether or not your firm have manufactured hydrants of that construction.

(Same objection as to the model.)

A. We have not.

100 Q. Have you repaired the same?

(Same objection.)

ference of the thickness of the packing taken out of there;" is it not so?

A. No, I only referred to the packing taken out from under the bushing, and not to the packing under and above the brass ring. I think the ring is designated as the letter O in both patent drawings.

405 C. Q. But if you take into account all the packing in this model when it was first put in evidence here, the difference
205 between the end play of the case then and its end play now is just "the difference of the thickness of the packing taken out of there," is it not?

A. It would be substantially the same.

Adjourned at 1 o'clock to 2 p. m.

WEDNESDAY, *March* 5—2 p. m.

Direct examination resumed.

By Mr. HILL: In view of the amendments filed by the defendants since the taking of the direct evidence of this witness in this cause, I find it necessary to examine the witness further as to new matter, which I deem within the issue as now presented by the pleadings in this cause.

406 Q. When did it first occur to you to make a hydrant substantially as shown by "Exhibit Bailey's Original Model?"

A. Early in the spring of 1865.

(Both question and answer objected to as immaterial, the only issue in this connection being whether the invention now embraced in the reissue sued upon was disclosed by the original application of this witness.)

407 Q. How do you fix the date?

(Same objection.)

A. It was about the time I went from Buffalo to Lockport.

408 Q. State what, if any, circumstances you now recall which enable you to fix the date as you have done?

(Same objection.)

A. I fix the date from the fact that I went to Buffalo to work January 1, 1865, and I left there some time during the
206 month of April to take an interest in the business then conducted by my father and brother, by buying the interest of one or the other of the parties—that is, of my father or brother.

409 Q. When was the first complete hydrant made by you substantially like the aforesaid model?

A. Some time during the fall of 1865 or early winter of 1865.

410 Q. How do you fix this date?

A. I fix it from several circumstances. One is the return of my brother from Medina. He and I had a conversation in regard to it, and he said in substance that I had better not fool away my money on it. Another circumstance is that the hydrant was completed and in operation several months prior to the making of the model as exhibited here. I remember the fact of my making a tin model for another purpose, from which I got the idea of the cylinder valve.

411 Q. When and where did you first get the idea of making a hydrant with a loose case?

(Same objection as to interrogatory 406.)

A. The thought first occurred to me while walking on the street, some time during the winter of 1864–'65 or early spring of 1865, in the city of Lockport—I think upon Pine street—where a hydrant had either been taken out or parties were in the act of taking it out because of its being broken, as I believed it to be, from the action of the frost. I had had several conversations with, I think, Mr. Wm. G. Hamilton in regard to defects in hydrants then in use.

412 Q. Where did Mr. Hamilton then reside, where does he now reside, and who was he?

A. He resided in the city of Lockport. He now resides, I believe, in Indianapolis. He was a machinist by trade. I think he was then working for the Holly Manufacturing Co.

207 413 Q. Of whose manufacture was this broken hydrant that you then saw, if you know?

A. I think it was Race & Mathews'.

414 Q. Where was the breakage in that hydrant and what was its construction generally, as near as you can remember?

A. The breakage was in the stock of the hydrant.

(Witness is here shown Vol. 3, 1858, U. S. Patent Office Reports, page 430, drawing 19206, and asked further, Will that aid you in the matter in any way?)

Witness continues: My recollection is that the general conformity of the hydrant is as here represented, except that the valve was opened with a screw, instead of the eccentric, as shown in this drawing.

415 Q. Indicate upon the drawing where the breakage occurred in the hydrant which you have spoken of, and indicate, if you please, how it happened.

A. My recollection is that it was very near the bottom of the stock, just above the valve. I should say it happened by the earth freezing, bringing a force under this overhanging projection on the body of the hydrant greater than the strength of the material of which the hydrant was made.

416 Q. Did it occur to you at this time how to remedy this difficulty in the manufacture of hydrants? If yes, state what the remedy was.

A. It occurred to me that if I should put a loose case upon a hydrant and get rid of a shoulder or fulcrum for the earth to act upon when upheaving by the frost the difficulty would be overcome.

417 Q. How soon after this was it that you prepared a sketch or drawing or diagram embodying this idea?

(Same objection as to interrogatory 406.)

A. I think it was some time in the fall following.

208 418 Q. How do you fix that date?

(Same objection.)

A. I fix it from the time, or about the time, I made my tin model, spoken of before, and the commencement of the making my first or experimental hydrant.

419 Q. Where was this experimental hydrant set up?

A. It was in the basement of the building adjoining the one occupied by myself and brother and owned by Trevor & Co., situated between Market street and the canal, Lockport, N. Y.

420 Q. How long did that remain there?

A. Well, I should say about a year; perhaps more.

421 Q. What became of it?

A. I think it was broken up and melted up after a few years. It laid about the shop for a long time after taking it down.

422 Q. Please describe that experimental hydrant, as near as you can.

A. The construction of it was very similar to this model, "Exhibit Bailey's Original Model," except this bead as shown upon the model was not upon it. The case could be lifted until it struck the hose nozzle or discharge orifice, and the part where it connected with the water-main was made to connect with gas-pipe fittings; otherwise it was essentially the same as this model.

423 Q. State whether or not the same was shown by you to other parties, and whether the place where it was then set up was readily accessible.

A. I did show it to different parties. The door was open to the basement most all times of day.

424 Q. Please name some of the persons you now remember to whom you showed this experimental hydrant.

209 A. I showed it to Mr. Wm. Spaulding, Mr. George Bailey, Mr. J. E. Ferguson, and, I think, to Mr. Wm. G. Hamilton; also the Trevor Bros., I am sure, because it was in their building; also, I think, to Mr. Charles R. Penfield, but I am not quite positive about him.

425 Q. I notice in your model "Exhibit Bailey's Original Model" that the base of the hydrant, as you have termed it, represented as the part B in the specifications in both the original and reissue patents, is of peculiar form and construction, differing materially from the hydrant represented in the drawing which you just now examined in the Patent Office Reports, 1858, vol. 3, page 430. What is the occasion for that?

A. The peculiar construction of the valve renders it necessary to have a water space on all sides or surrounding it, in order to have equal pressure on all sides of the valve, so as to render the working of it perfectly easy under all circumstances.

426 Q. Please give the dimensions, as near as you can remember, of the experimental hydrant of which you have spoken.

A. The base was about six or seven inches in diameter and about three inches up and down; the stock at the bottom, where it screwed into the base, three or three and one-half inches in diameter; the top of the stock, immediately under the top end of the case, about

the same diameter as the bottom. I should say the extreme height of the whole was about two and one-half feet. The opening in the base, I think, was for inch-and-a-half gas-pipe; it might have been one and one-quarter inches; the discharge opening for ordinary three-quarter or inch rubber hose. The loose case was about four inches in diameter outside, and I should say eighteen or twenty
210 inches in length. The valve was about two inches, outside diameter, and I should say about three inches in length, perhaps three and one-half.

427 Q. What were its connections?

A. It connected on to what we termed a "trunk" or "penstock" for a water-wheel.

428 Q. Were drawings made for the castings for this hydrant, and whether it was cast—also patterns, and who made them, respectively, and where are they now?

A. I think likely there were drawings made—I won't say positively—for the patterns, not for the castings. Patterns were made and castings made from the patterns. I think I made the patterns. I can't tell where they are now. I guess they are destroyed. I think Mr. Gardner made the castings. I can't say where they are now. I made the drawings, if any were made, but I didn't keep them.

429 Q. State whether you made diligent search for any drawing, diagram, or sketch other than the partial plan already produced by you, dated "March, 1886," and with what success relative to the invention in question.

A. I did. I have several times. I found an old diary with a very rough sketch in it. That is all I could find.

430 Q. At whose request did you make this search?

A. I think I have been requested by Mr. Flower and also by Mr. Hill.

431 Q. Have you that diary with you?

A. I have.

432 Q. Please produce it and show us the sketch, first describing the diary itself and the date.

(Same objection as to interrogatory 406.)

211 A. It is what I think you would call a "pocket diary." The title page reads "Daily pocket diary for the year 1865." It is a book I carried right along for the year 1865. I made various memoranda in it. On the page headed "December, Sunday, 3, 1865," is the sketch to which I refer.

433 Q. As to the date, what relation has that to the actual date of the entry of the sketch in the diary?

A. I presume it has not anything to do with it. I don't know. My custom has always been and is now, whenever I am thinking of anything new, to make a sketch of it in such book as I may have in my pocket or am in the habit of carrying.

434 Q. From this sketch and its place in this diary of 1865 do you derive any aid in remembering exactly when you made such sketch?

A. No, I don't; not as to the time, the week, or month; as to the year, yes.

435 Q. What as to the year?

A. It was made in the year 1865; I think during the fall.

436 Q. Whether before or after making the drawing for the experimental hydrant?

A. Before.

By Mr. HILL: I offer in evidence the page of the diary containing the sketch concerning which the witness has testified, and request the examiner to have the same to be photo-lithographed for the purposes of this case.

The examiner marks the page "Exhibit Bailey's Diary Sketch."

437 Q. Are there any other drawings, diagrams, or sketches, made prior to the making of "Exhibit Bailey's Original Model," relative to your said invention now in existence except "Bailey's Partial Plan" and this sketch?

212 A. None to my knowledge.

By Mr. HILL: I offer in evidence the plan heretofore produced, hereinbefore marked "Bailey's Partial Plan," and make the same an exhibit in this cause. It is marked "Exhibit Bailey's Partial Plan."

438 Q. Do you derive any aid from this "Exhibit Bailey's Partial Plan" in fixing the date of the construction of the experimental hydrant aforesaid; if so, what?

A. I remember I had the experimental hydrant made and in operation before warm weather in the spring of 1866, and before I made this plan, I think.

Adjourned at 5 p. m. to 10 a. m., March 6.

Examination resumed March 6, 1884, at 10 a. m.

Cross-examination:

439 C. Q. The thing which you have referred to as an experimental hydrant, and which you have said was made in the fall of 1865 or early winter of that year, was not intended for practical use, was it?

A. It was not intended for use as a fire-hydrant except in a miniature form. It was used practically for sprinkling about the yard and washing castings.

440 C. Q. It was not a hydrant which was intended for practical use, was it?

A. Yes, sir; it was.

441 C. Q. You testify to that positively, do you?

A. I do.

442 C. Q. Was it set in the ground?

A. No, sir.

443 C. Q. How was it rigged in the basement of your shop while it remained in upright position and connected with the penstock of the water-wheel?

213 A. It sat upon the floor or some timber, the peculiar shape of the base being such as to hold it in upright position.

444 C. Q. Did you make any other actual use of this experimental hydrant than to try the cylinder-valve in it and test the operation of such valve?

A. I did. I used it for sprinkling about the shop and yard and for washing castings.

445 C. Q. Well, in doing all that you only had to operate the cylinder-valve so far as the hydrant itself was concerned; is it not so?

A. I had to put a hose onto it to conduct the water to where we wanted it; open the valve whenever we wanted to put the water on, and to close it whenever we wanted to shut it off.

446 C. Q. Have you now mentioned all the uses to which you put this experimental hydrant and all that you did with it practically?

A. All the uses that I remember of. I used to take it apart and put it together to test the efficacy of the valve and its operations.

447 C. Q. What was the tin model spoken of from which you say you got the idea of a cylinder-valve?

A. It was for a gate to a water-wheel.

448 C. Q. And did it have a cylinder-valve?

A. It did, valve or gate.

449 C. Q. Where do Wm. Spaulding, J. E. Ferguson, Charles R. Penfield, and the Trevor Bros., mentioned by you in answer to interrogatory 424, now reside, or where did each of them last reside, to your knowledge?

A. Wm. Spaulding resides in Lockport; C. R. Penfield resides in Lockport; one of the Trevor brothers resides in Lockport; one resides in Detroit, Michigan; J. E. Ferguson resides in Owosso, Michigan.

214 450 C. Q. When did you make the search which resulted in your finding the diary of 1865 produced by you?

A. It was about three weeks ago; it was on Sunday.

451 C. Q. Where did you find it?

A. I found it in a small drawer in a bureau in my house at Owosso.

452 C. Q. This diary is divided up so as to give space for three days on each page, is it not?

A. Yes, sir.

453 C. Q. Please now examine it and state upon how many spaces allotted to the days in December, 1865, there appear any entries whatever.

A. I find eight spaces in which there are marks of different kinds made.

454 C. Q. Name the dates of those spaces and state what appears upon each.

A. Sunday, December 3, 1865, appears the sketch to which I have already referred, and the word "hydrant" written after it; Friday, the 8th, the word "lecture;" Monday, the 11th, the word "comp;" Thursday, the 21st, the word "lecture;" Saturday, the 23d, "Put in gates for Woolen Co. Hope they will work;" Monday, the 25th,

the word "comp;" Sunday, the 31st, which I should say was meant for 16 weeks, the figures one (1) and six (6) and the word "weeks." Figures "20," space immediately following without any date figures:

5541.56
20.

61.56

455 C. Q. Then, when you produced this diary yesterday, there were twenty-four blank spaces allotted to as many days in December, 1865, and only seven such spaces in which anything was written or drawn; is it so?

A. I shall say it was.

456 C. Q. And are the spaces allotted to the days of the six months preceding December, 1865, any better filled than those of the latter month?

A. I should say they were about the same, without counting.

Redirect examination.

457 Q. From the time of receiving letters patent No. 75344 did you ever see a hydrant manufactured by Samuel R. C. Mathews with a loose case substantially like "Exhibit Bailey's Original Model?"

A. I don't think I ever did.

458 Q. Were any of that character manufactured in the city of Lockport from 1868 to 1870 that you know of or saw?

A. Not to my recollection.

459 Q. When, where and how did you first learn that the said Mathews was engaged in the manufacture of hydrants with a loose case at the city of Philadelphia?

A. I think it was some time in the winter of 1874–75, or in the spring of 1875, at the city of Saginaw, I think. I was informed by the engineer of the Saginaw city water-works, Fred. Clifton. He told me that Mr. Mathews had forbidden them from using any other hydrant than the Race & Mathews hydrant, manufactured by R. D. Wood & Co., and at that time I learned that Mr. Mathews was in Philadelphia.

460 Q. What did you learn at that time about Mr. Race, if anything?

A. I don't think I learned anything about him.

216 461 Q. Or at any other time?

A. I had heard some way—I couldn't say how nor where—that Mr. Race was dead.

462 Q. Do you know when Messrs. Race & Mathews left Lockport, N. Y.?

A. No, sir.

463 Q. Do you remember the last time you saw either of them at Lockport, as near as you can state?

A. My recollection is it was somewhere in 1868 or 1869, but I may be in error about that.

464 Q. From that time down to your interview with the engineer of the water-works at Saginaw had you any information whatever of any kind as to the whereabouts of said Mathews or Race?

A. I think not. I have no recollection of any.

465 Q. When, where, and how did you learn that James Flower & Brothers, of Detroit, plaintiffs in this suit, were engaged in the manufacture of hydrants?

A. At the time of my visit to Saginaw that I spoke of having a conversation with Mr. Clifton I saw their lithograph chart hanging upon the walls of the engine-room.

466 Q. After this when did you first have an interview with James Flower or either of his brothers relative to the matter of hydrants? State the first time you ever saw him, or either of them, as near as you can remember.

A. My recollection is the first time I ever saw Mr. James Flower was the occasion of my visit at Cleveland to meet Mr. Flower. It was some time during the winter of 1875–1876, or spring of 1876.

467 Q. You had some correspondence with him, did you not?

A. I had.

468 Q. How did that begin?

217 A. I think after I was at Saginaw; at that time I took their address from this lithograph, and very soon after my return home I wrote to them upon the subject of hydrants. I should say this is the first letter I wrote them.

By Mr. HILL: We offer the letter in evidence, dated Lockport, N. Y., Nov. 3, 1875, from T. R. Bailey to James Flower & Bro., Detroit, Mich., marked "Exhibit Bailey-Flower Letter No. 1."

469 Q. You received a reply to this letter, did you not?

A. I am positive I did.

470 Q. What was the result of that correspondence?

A. I find here a contract written by myself, presented to me this morning by Mr. Hill, which followed the writing of the letter just presented here, and probably some other letters.

By Mr. HILL: We offer in evidence this contract referred to by witness, dated Lockport, N. Y., January 7, 1876, signed T. R. Bailey, marked "Exhibit Bailey-Flower Contract."

471 Q. State whether or not, from the date of receiving your original letters patent down to the making of this contract with Flower Bros., you had any information, and, if so, what, that any parties were making hydrants substantially like "Exhibit Bailey's Original Model," other than what you learned at Saginaw, as you have already stated.

A. I have none.

472 Q. You were interrogated as to a conversation between yourself and Samuel R. C. Mathews, in which you stated that he asked you to enter or make a disclaimer; what particular part of your invention did he specify on that occasion as being his?

218 (Objected to as inadmissible because already gone into in the examination-in-chief, and not opened by the cross-examination.)

A. I don't think he specified any particular part. I think that it was a kind of a general disclaimer he wanted me to enter.

473 Q. When you learned that the said Mathews had notified the mayor of the city of Lockport, Mr. Brown, that the hydrants which you had manufactured for the use of that city were infringements upon Race & Mathews' invention or inventions, did you know then, or had you any intimation from any source, that they had a patent embracing the loose case as shown in the hydrants which you had then manufactured?

A. I don't think I had.

474 Q. You understood then, did you not, that the claims of Mr. Mathews to Mr. Brown, the mayor, of infringements as to the hydrants of your manufacture were embraced in letters patent already issued to them at that time?

(Objected to as leading.)

A. My recollection of it is that what he claimed was infringed was on the patent granted in 1858.

475 Q. At that time had you ever seen any other hydrants than those manufactured by you having a loose case substantially like yours?

A. I think not.

476 Q. You have stated upon cross-examination, I think, that from the date of your letters patent for some time you took steps to introduce your hydrants into the market other than the manufacture of the number made for use by the city of Lockport. Please state as near as you can remember what you did in that respect?

219 A. We advertised them in a catalogue we got out; also advertised the patent for sale in the Scientific American, and I think in one or two other papers.

477 Q. State whether or not you held yourself ready to fill orders for hydrants manufactured according to your invention during all the period from the date of your letters patent down to your contract with Flower Bros.; if yea, state what facilities you had for filling such orders.

A. We did; we had a machine-shop in which we had lathes and other tools suitable for the manufacture of hydrants.

478 Q. You have already stated, I think, that you had the patterns. State whether you were prepared during all this time to manufacture hydrants according to your invention to fill such orders.

A. We were.

479 Q. You have been interrogated as to letters written by you to Mr. Gleason. Please examine this paper and see if it refreshes your memory in any way in regard to that correspondence.

A. It does not; it is entirely gone from me.

By Mr. HILL: Letter purporting to be dated Erie, Pa., April 28, '76, signed J. M. Gleason, marked for identification only "Gleason-Bailey Letter." Counsel for defendants notifies counsel for plaintiffs

that at the examination of Jared M. Gleason, which is intended in the course of putting in defendants' evidence, he shall call for the production of this letter.

480 Q. Please look at "Exhibit Bailey's Original Model," and state in what condition you now find it.

A. I find it all taken apart.

481 Q. After it was produced here in your direct examination what was its then condition?

220 A. As far as I was able to judge it was in the same condition as it was when I gave it to Mr. Flower.

482 Q. From the time when you made the same and its mate down to the time when you delivered it to Mr. James Flower you have stated, I think, that it was in your possession. State whether or not you ever altered it in any way or manner; and, if so, how, when, and where?

A. I never did alter it.

483 Q. When, to your knowledge, for the first time were the bushings in the base taken out, and by whom?

A. Yesterday or day before; by Mr. Roberts.

484 Q. I now hand you the several parts of the hydrant with the washers, and ask if you can put the same together again as it was when produced here?

A. I can do it if the party who took it apart can tell me where those washers came from.

485 Q. How many washers have you here?

A. Five leather washers.

486 Q. You have already stated that according to your specifications in either the original or reissue three washers are required at least; taking now the base and the ring-nut M, see if you find the washer there which belongs between the two.

(Objected to as stating what the witness has not testified and what the specifications do not, in fact, show.)

A. There seems to be two washers adapted for that particular place.

487 Q. Please put them on and return it to its place.

Adjourned at 1 until 2 p. m.

Redirect examination resumed at 2 p. m.

A. I have done so.

488 Q. Please state whether you have since the adjourn-
221 ment succeeded in putting the "Exhibit Bailey's Original Model" together, and whether or not it is in the state, substantially, that it was when you first produced it here.

A. I have, and it is.

489 Q. You found a place for the five washers. State whether or not they are now in place, and whether or not they are the ones which you originally put there when you made the model.

A. They are, and I believe them to be the same except the one immediately under the stock of the hydrant and on top of the ring-

nut. In taking the hydrant apart the piece of packing last referred to often drops out, is liable to be lost, and would have to be replaced if lost, and has been so replaced several times.

490 Q. You have been interrogated as to your interest in this cause and have answered that you had no pecuniary interest in it; what other, if any, interest have you in the litigation?

A. The only interest would be a natural desire or pride to have the patent sustained, believing that I am the original inventor of the device secured by it.

Cross-examination resumed:

491 C. Q. Was the letter shown you at the time interrogatory 479 was asked and marked for identification "Gleason-Bailey Letter" among the papers which you found in your possession and delivered to Mr. Flower or Mr. Hill?

A. I don't know. I have no recollection of ever seeing it before to-day.

492 C. Q. What is your belief as to how Mr. Hill came to have it when he first showed it to you?

A. I believe Mr. Flower gave it to him.

222 493 C. Q. And how do you suppose Mr. Flower came by it?

A. I suppose he must have got it from me some way, from the fact that he presents such a letter.

494 C. Q. You refer, in answer to interrogatory 476, to a catalogue you got out advertising your hydrant; was it an illustrated catalogue and did it contain any wood-cut or other picture showing such hydrant or its construction?

A. To all of the question before and including "illustrated catalogue," I would answer yes; to the balance of the question, no.

495 C. Q. In answer to interrogatory 470 you refer to a contract which has been put in evidence as "Exhibit Bailey, Flower Contract." This contract provides for an exclusive license to Flower Bros. at a royalty of one dollar for each and every hydrant, with a reservation of the right to manufacture yourself; was this the contract actually entered into by you and Flower Bros., or was a different contract made?

A. This contract never was entered into. The contract entered into was the selling to them the exclusive patent as represented by this paper—"Exhibit Bailey Assignment."

496 C. Q. During the time that your hydrants lay upon the ground in the city of Lockport near where it had been expected to set them, did you ever view them there and look at the hydrants which had been set in the places where your hydrants had been intended to go?

A. I don't know whether I ever did or not. I probably have seen them hundreds of times.

497 C. Q. If the Race & Mathews hydrants, with loose cases having end play and having their upper ends upon the outside of
223 the hydrant stock so that they could be seen, were in fact the very hydrants which were set in the places where your hydrants had been intended to go, do you think you would have failed

to see them before your hydrants had been finally taken away from off the ground where they had lain so long?

(Objected to as incompetent.)

A. It is a fact, although I may have seen the hydrants hundreds of times, I do not know whether they were made by the Holly Company or Race & Mathews.

498 C. Q. You mean, do you not, that you did know of whose manufacture those hydrants were when you saw them, but that you have now forgotten about it?

A. If I ever saw the hydrants I would have known whose make they were, but I have no remembrance of whose make they were.

Direct examination resumed:

499 C. Q. You mean, when you say that the agreement of January 7, 1876, was never entered into, that Flower Bros. never manufactured any hydrants under it, do you not?

(Objected to as leading.)

A. I suppose yes would answer as well as anything for that.

THOMAS R. BAILEY.

JAMES E. FERGUSON, a witness produced by the plaintiffs, being first duly sworn, deposes and says:

1 Q. What is your name, age, and occupation and residence?

A. Name, James E. Ferguson; age, 45 years; occupation, machinist; residence, Owosso, Mich. I have resided there eleven
224 months. Before that I resided at Lockport, N. Y. I was born there and resided there twenty-nine years, and in the town of Cambria eight years; afterwards I went back to Lockport and remained there until I went to Owosso.

2 Q. How long have you been a machinist?

A. Since 1865. I learned my trade with T. R. Bailey, the gentleman who has just testified in this case.

3 Q. How long have you known him?

A. About thirty or thirty-five years. We are brothers-in-law. He married my sister.

4 Q. State whether you know one Washburn Race, where he resided when you knew him, and what was his occupation.

A. I knew him by sight only at Lockport, N. Y., from 1865 up to the time he left there. He, with Samuel R. C. Mathews, carried on a machine-shop there during all that time.

Q. Did you know Mr. Mathews?

A. I did by sight.

6 Q. Do you know the plaintiffs, James Flower & Bros., of Detroit; if yea, how long have you known them?

A. I know them and have known them for one week—since I have been called to Detroit as a witness in this case.

7 Q. Where were you, and in what business were you engaged, and for whom, during the year 1865?

A. In Lockport, N. Y., as a machinist for T. R. Bailey & Son—that is, I suppose that is the firm composed of T. R. Bailey, the father, and T. R. Bailey, the son; the latter the witness in this cause.

8 Q. Please examine the brown model of a hydrant before you and state whether or not you ever saw it before; and, if yea, where and when, as near as you can now remember, and state how, if you do so recognize it.

225 By Mr. HILL: I refer to "Exhibit Bailey's Original Model."

A. I have seen it before at Lockport, N. Y., at the place of business of T. R. Bailey, at the time of its construction, in the winter of 1866–'67 or spring of 1867, and I recognize it from the general outside appearance—the paint mostly.

9 Q. Why do you mention the paint upon it as being a means by which you identify it or recognize it?

A. From the fact that I saw it when it was first painted.

10 Q. State whether or not that is the only model of that kind which you then saw, and, if not, how many did you see at that time?

A. I saw one besides that.

11 Q. State whether you examined them at that time carefully?

A. I did, the outside.

12 Q. State whether you ever saw a hydrant constructed substantially like this model; and, if so, where and when did you first see it?

A. I have seen one at the place of business of Mr. Bailey in the year 1867.

13 Q. Was this the first hydrant you ever saw constructed in that manner?

A. It was.

14 Q. State whether or not you saw an experimental model or small hydrant constructed like that model; if so, where and when?

(Objected to as leading.)

A. I did see one, with the exception that this loose case would slide farther up, constructed in the shop of T. R. Bailey, placed in the basement of Trevor Bros.' building in the winter of 1865.

15 Q. How do you fix that date?

226 A. Because that was the first year that I worked at the business.

16 Q. You mean as a machinist, of course?

A. Yes, sir.

17 Q. State whether or not this hydrant was set up and in operation; and, if so, state the circumstances which enable you to recall the fact.

A. It was set up and in operation; I used to use it to wash castings with in the summer of 1866.

18 Q. Please give its general dimensions, and describe its connections as near as you can remember.

A. It stood about 2½ to 3 feet high; about 4 or 4½ inches in diameter. The connection I don't remember anything about, except

that it was connected to a trunk there through which the water came from the race to the water-wheel.

19 Q. State whether or not, and, if so, when, you saw patterns and castings for hydrants of that construction in the shop of T. R. Bailey & Son, or T. R. Bailey's Sons, at Lockport, N. Y.

A. I saw them at T. R. Bailey's Sons then.

20 Q. When?

A. In the year 1867.

21 Q. State whether you ever saw a full size hydrant of that construction set in the ground at Lockport; and, if so, when you first saw it, and where it was located.

A. I did; on Transit street near High street; I don't remember whether it was in 1867 or 1868.

22 Q. State whether or not you saw other hydrants of that construction in the city of Lockport; and, if so, state when you saw the same, and if you know state for what purpose they were constructed.

A. I did see others constructed there, but I don't remember for what purpose; I couldn't say whether it was in 1867 or 1868.

227 23 Q. State exactly when it was as near as you can remember, and how you fix the date.

A. It was either in the winter of 1867–'68 or spring of 1868; I fix the date from a fire which they had near; it was either in the spring or fall.

24 Q. By whom, if you know, were these hydrants which you saw manufactured, and where?

A. They were manufactured by the Bailey Sons at their shop, Lockport, N. Y.

25 Q. State whether or not hydrants were manufactured by Race & Mathews at their shops; and, if so, were they not of similar construction about that time.

(Objected to as leading and as without foundation, showing the witness to have any acquaintance with the subject inquired about.)

A. They did construct hydrants at this time; I never saw anything like them of their manufacture.

26 Q. Were you familiar with the construction of the hydrants which Race & Mathews were manufacturing at that time in Lockport? And, if so, state your means of knowing such facts.

A. I was; my means of knowing was from passing by the shop; seeing them piled outside of the shop and in the shop.

Cross-examination:

27 C. Q. Had you ever worked at the machinist's trade before you were employed by T. R. Bailey, Sr., or the firm of which he was a member?

A. I had.

28 C. Q. When do you say you were first employed by T. R. Bailey, Sr., or his firm?

A. In May, 1865.

228 29 C. Q. And how long did you continue to be employed in that shop by T. R. Bailey, Sr., and his firm and the successors to his firm?

A. Until the fall of either 1870 or 1871.

30 C. Q. Did you ever afterwards return to work in the same shop, or for T. R. Bailey, Jr., or his firm in Lockport?

A. I did not.

31 C. Q. Then you were employed in that shop continuously for over five or six years, beginning with May, 1865, were you?

A. I was not.

32 C. Q. Well, how continuous was your employment there during that five or six years, beginning with May, 1866?

A. I was there, with exception of some times in the fall, when the coopering was good, they would let me off to work in the cooper-shop five or six weeks. All the rest of the time I worked there at Bailey's shop.

33 C. Q. Did you, during the time of your employment at the Baileys' shop, do any work upon hydrants or models of hydrants?

A. I don't think I did.

34 C. Q. Have you ever in your life worked upon hydrants?

A. Not that I recollect of, any more than washing castings. I might have done that.

35 C. Q. Have you any memoranda in any manner relating to the time when you first saw the models like "Exhibit Bailey's Original Model," or the hydrants constructed like them, or the experimental hydrant with which you washed castings, as testified by you?

A. I have not.

229 36 C. Q. The dates which you have given, then, in relation to the things enumerated in the last preceding interrogatory are given upon your bare and unaided memory, are they?

A. Aided by some circumstances.

37 C. Q. But you rely upon your bare and unaided memory, do you not, in fixing the date of those circumstances?

A. Yes, sir.

38 C. Q. How near have you lived to your brother-in-law, Mr. T. R. Bailey, since you went to Owosso, about eleven months ago?

A. I boarded with him from April up to September; since that time I have lived about half a mile from him.

39 C. Q. How often during your residence in Owosso have you and he talked over this matter of the hydrants, and what happened about them in Lockport between 1865 and 1868?

A. I could not say.

40 C. Q. State as nearly as you can.

A. I never remember but once.

41 C. Q. How lately was that?

A. A week ago last Monday.

42 C. Q. How long have you been in Detroit this time to attend as a witness here?

A. I got here a week ago last night.

43 C. Q. And you have been in your brother-in-law's company from day to day since that time, have you not?

A. I have.

44 C. Q. How much of that time have you been here in attendance while your brother-in-law's examination was going on?

A. The biggest part of the time.

230 45 C. Q. You say, in answer to cross-interrogatory 27, that you had worked at [the] machinist trade before you were employed by T. R. Bailey, Sr., or his firm, and in answer to interrogatory 2 you said that you learned your trade of machinist of T. R. Bailey, the previous witness. Will you please explain this matter a little more fully?

A. I worked for Pitts & Brayley, of Buffalo, for about three months before I went to work for T. R. Bailey, Sr., at Lockport.

JAMES E. FERGUSON.

FRIDAY, *March* 7—10 a. m.

JAMES FLOWER, a witness produced and sworn on the behalf of plaintiffs, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. James Flower; residence, Detroit; age, 66 years; occupation, machinist. Served my time as a mill-wright machinist in England, in a place called Winchester, close to Southampton, Hampshire; I was born there, and commenced work between 8 and 9 years old; I was apprenticed at the age of 14, for seven years, or until I was 21. I came to this country in 1840 or 1841, and came right to Detroit. I am one of the plaintiffs in this suit. George Flower and Thomas Flower, the other plaintiffs, are my brothers. I have resided in Detroit since I came here first.

2 Q. When did you establish yourself in business first in Detroit?

A. 1851 or 1852, I think; the same firm as now—James Flower & Brothers.

3 Q. Do you know Thomas R. Bailey, Jr., a witness who has testified in this case; if yea, where did you first become acquainted with him, and how?

231 A. I know him; the first correspondence we had is this letter—November 3, 1875—received from him (referring to "Exhibit Bailey-Flower Letter No. 1").

4 Q. That letter, it seems, led to considerable correspondence; to what does it relate?

A. It did lead to considerable correspondence between James Flower & Bros. and Mr. Bailey. It relates to a patent issued to T. R. Bailey (referring to "Exhibit Bailey's Original Patent," No. 75344). This is the patent.

5 Q. What was the result of such correspondence?

A. The result was that Mr. Bailey and our firm came to this agreement (referring to "Exhibit Bailey-Flower Contract"), and afterwards to this (referring to "Exhibit Bailey's Assignment").

6 Q. On what day did you receive the assignment in writing from Thomas R. Bailey?

A. I think we received it March 30, 1876.

7 Q. After receiving that assignment, what was the first thing you did in the assertion of your rights under the patent?

A. The first thing we got some circulars printed.

8 Q. Please examine the paper marked "Exhibit Flower Circular," and state whether or not that is one of the copies of the circular to which you refer?

A. Yes; it is.

By Mr. HILL: We offer it in evidence as such exhibit.

9 Q. State what was done with such circulars?

A. The first copy we sent away was sent to Mr. Mathews. We sent copies to all water-works we then knew of in the United States.

10 Q. State whether or not your attention was called to a circular from R. D. Wood & Co., called out by your aforesaid circular; if yea, how, when, where, and by whom.

232 A. It was, by receiving a circular sent up from the fire department office here as soon as they received it, I presume.

11 Q. Please examine the paper now shown you and state whether or not it is one of the copies of R. D. Wood & Co.'s circular to which you refer.

A. I believe it is.

By Mr. HILL: I offer the said paper in evidence, marked "Exhibit R. D. Wood & Co.'s Circular."

12 Q. Why did you send the first copy of your circular to Mr. Mathews?

A. I thought it was right to let him know first, as he had been warning people not to buy hydrants of us.

13 Q. How did you ascertain that fact?

A. A great many people told me so. I don't remember any one in particular.

14 Q. In the contract "Exhibit Bailey-Flower Contract" occurs this provision: "And James Flower & Bros. are to furnish funds for a reissue of my patent free of all expense to me and conduct such proceedings as are necessary to produce such reissue." Please state what rendered said reissue necessary.

(Objected to as inadmissible and incompetent.)

A. I suppose we had to furnish the funds for the reissue. We found that the drawing was the same as that is now (referring to "Exhibit Bailey's Original Model"), with the loose case hard up against the bead on the hydrant, or that drawing shows the same (referring to "Exhibit Bailey's Original Patent, No. 75344"). Then we took advice, and found by that advice that the drawing was not the same as the model in the Patent Office.

15 Q. Whom did you consult relative to this matter?

A. Mr. Leggett, Sr., of Cleveland; Mr. M. D. Leggett, I think; formerly Commissioner of Patents.

233 16 Q. Please examine the paper which I now show you and state what it is and if you recognize it.

A. I do; it is a letter we received from M. D. Leggett & Co., dated January 4, 1876.

By Mr. HILL: I offer this letter in evidence, marked "Exhibit Leggett-Flower Letter."

(Counsel for defendants objects to the letter as inadmissible and incompetent, the same being hearsay of the second order.)

17 Q. State whether or not you informed Mr. Bailey of these facts; and, if so, how long after you learned or was advised of the necessity of a reissue.

A. We informed Mr. Baily right off as soon as we received the letter. I think on his reply we commenced getting out a reissue.

18 Q. Please examine the brown model before you, "Exhibit Bailey's Original Model." State whether you ever saw it before it was produced in evidence here by Mr. Bailey; and, if so, state as near as you can remember when and where you first saw it.

A. I have seen it before. It has been in my possession from the time I bought the patent until we gave it to Mr. Hill a few days ago. I first saw it in Lockport, N. Y. After the purchase of the patent Mr. Bailey pulled this out of a drawer under his desk; then I brought it home with me. I don't know the exact date, but it was when we bought the patent of him.

19 Q. Please examine the same carefully and state whether or not it is now in the same condition that it was when you first saw it.

A. I should say it was, as near as I can see.

20 Q. State whether or not at any time during your consultation with M. D. Leggett & Co. touching the reissue this Bailey's original model was produced or submitted to M. D. Leggett; and, if so, when, where, and by whom.

234 A. It never was produced to him. I did not know of its existence until after the reissue No. 6990.

21 Q. Please examine the model again, and state whether or not you saw it on Tuesday last here, after the packing had been removed therefrom, and when it was put together without such packing, the washers having been taken out.

A. I did.

22 Q. Did you see those washers taken out of this model on that day? If so, state whether or not you ever saw those washers before.

A. I saw them taken out, but I never saw them out before, except the top one, which has to be renewed frequently. People take the model to pieces frequently, and it drops out.

23 Q. How long have you been engaged in the manufacture of hydrants?

A. I think since 1863 or 1864. We made some hydrants then. We never made really a business of it at that time. We made a few from time to time. We went regularly into the business in 1873 or 1874—I wouldn't be certain about the date—and have been continuously engaged in it from that time until now.

24 Q. State how soon after you purchased this invention from Mr. Bailey did you commence to manufacture hydrants under it.

(Objected to as immaterial.)

A. We commenced making the patterns as soon as we bought it.

25 Q. State whether or not you manufactured and sold any hydrants under the said letters patent in the year 1876; and, if so, how many.

(Same objection.)

A. We sold some—I could not say how many.

235 26 Q. From that time or until the present time how many hydrants, embracing the loose case with end play, have the firm of James Flower & Bros. manufactured?

Same objection.

A. I couldn't say; we have never kept a separate hydrant book. It goes through our regular books.

27 Q. Please state in round numbers not less and not more than so many.

(Same objection.)

A. Between eight hundred and one thousand, I should think; that is as near as I can tell.

28 Q. State how they are marked.

(Same objection.)

A. That depends on how the hydrant is made, as we make them different from these, with some of the patents off. There are three or four patents on this hydrant.

Witness refers to a nickel-plated model marked "Exhibit Flower Model," which Mr. Hill offers in evidence, and to which Mr. Roberts objects as immaterial.

29 Q. State whether or not they are all manufactured under the Bailey original and reissue, and are not all so marked.

(Same objection.)

A. They are; all the hydrants we make are so marked.

30 Q. As to the necessity of packing between the base and the stock of the hydrant, as shown by "Exhibit Bailey's Original Model," in the manufacture of hydrants, have you anything to say?

A. I should say they would require packing.

31 Q. How is it, as a matter of fact, in practice?

236 A. There are few hydrants that I know of but what are packed. We make one style of hydrants with metallic packing requiring no leather or rubber. This style (referring to "Exhibit Flower Model") requires either rubber or leather packing between the stock and the foot of the hydrant.

32 Q. Are you acquainted with Samuel R. C. Mathews? If yea, when did you first form his acquaintance, and where?

A. I am; I couldn't say where I formed his acquaintance first nor when. I think I was acquainted with him before we were making hydrants as a business, about 1870 or 1871.

33 Q. Where did he then reside?

A. Philadelphia, I believe.

34 Q. In what business was he engaged?

A. In the same business, I believe, in connection with R. D. Wood & Co. I didn't know him before that.

35 Q. After seeing the circular of which "Exhibit R. D. Wood & Co.'s Circular" is a copy, how soon did you learn that that firm were manufacturing hydrants which you claimed were infringements upon the Bailey patents aforesaid?

A. I knew they were manufacturing the same hydrants before that.

36 Q. How long before?

A. I couldn't say exactly how long; about two or three years before.

37 Q. What steps, if any, after purchasing these patents, and how soon thereafter, did you take towards bringing suit against R. D. Wood & Co. for such infringement?

A. We commenced hunting up matters as regards the patent pretty soon after the purchase of Bailey. We got council to write up the case for us. Mr. M. D. Leggett, of Cleveland, was the one.

237 38 Q. State what led you to delay the commencement of a suit for such infringement against R. D. Wood & Co.

A. I think, if I recollect right, some time in March, 1877, Mr. Samuel R. C. Mathews called at our office here, in the city of Detroit, and stated, as near as I can remember, that he should like for us to stop to see what the issue would be in the Boston case, which I think he said was in the United States court, and if mechanics had any grievances they should settle them by arbitration without coming into the courts.

39 Q. Do you remember what he told you at that time about the situation or status of the Boston case? If so, state it.

A. I do not. I don't remember.

40 Q. What reason did he give for asking you not to begin suit until the Boston case was finished?

A. I don't remember what his reason was now. I can't call it to mind.

41 Q. Who else, if anybody, was present at that interview between you and said Mathews besides you and he.

A. I think my brother George was there; I am sure he was in the office with us.

42 Q. When did you first learn that the Boston case referred to had been decided by the Supreme Court of the United States, and from whom?

A. Last fall, I think, from Mr. Hill.

43 Q. How long before you commenced this suit did you have that information?

A. Not a great while before we prepared to go on with the suit.

By Mr. HILL: I offer in evidence a certified copy of the files of the United States Patent Office of the file-wrapper, contents
238 and drawing, in the matter of the letters patent granted Washburn Race and S. R. C. Mathews, Nov. 16, 1869, No.

96959, marked "Exhibit Race & Mathews Application of Oct. 29, 1868."

Adjourned at 1 until 2 p. m.

At 2 o'clock p. m. examination resumed.

44 Q. Please examine "Exhibit Bailey's Partial Plan" and state when and where you first saw it.

A. I first saw it in Detroit. It was sent to me by Mr. Bailey in a letter stating that he found it amongst old papers, and it was no good to him. The date I don't remember. It was probably two or three months after the purchase.

45 Q. Please examine the same carefully and state whether it is now in substantially the same condition it was when you received it.

A. It is, except the writing put on by the examiner.

46 Q. How as to the date on it—was your attention called to it when you received it?

A. It was. It is the same date—March, 1866.

47 Q. Where has it been all the time since you received it?

A. It has been in my own private cupboard filled with daily papers.

48 Q. Please examine the brass model "Exhibit Defendants' Model," together with the claims in the specifications in "Exhibit Bailey Reissue No. 6990," and state which of these claims you claim are infringed by the hydrants constructed substantially like this model in use here in the city of Detroit.

(Objected to as inadmissible and incompetent, the interpretation of the claims being matters of law for the court, and the witness not being qualified to express an opinion upon matters of fact involved in the comparison asked for.)

239 A. The first claim; also the third claim.

49 Q. Please examine "Exhibit Defendants' Model" and say whether you find therein the five parts specified in the third claim aforesaid.

(Same objection.)

A. I don't find but four there.

50 Q. Name the four parts.

A. I find the stock, loose case, foot, and the valve.

Q. How about the stuffing-box?

A. If they mean that—pointing to the top of the model—the stuffing-box would come in also; but I don't call that a stuffing-box. It is nothing but a gland screwed in to hold the hollow nut. There is no packing used with that. There is no liquid comes near that.

52 Q. How does that compare with the same device as shown in "Exhibit Bailey's Original Model?"

A. In this top—pointing to the top in the Bailey original model—the liquid fills this cap, and there is the same pressure as in the

stock of the hydrant. That would have to be packed, or else the water would leak out of it. In other respects the hollow nut is there with the gland, except that in one we have packing and the other not.

53 Q. State whether or not the devices in the two models, as shown, perform the same function and are equivalents.

(Objected to as leading, and also the same objection as to interrogatory 48.)

A. They do and they are.

54 Q. Please compare the valves in the two models with each other and state whether they perform the same function and are equivalents for each other.

(Same objections.)

A. They do and they are.

240 55 Q. The other parts are identical, are they not?

(Same objections.)

A. Yes, sir.

56 Q. Then you find the five parts in the defendants' model as specified in the third claim of the said reissue, do you not?

(Same objections.)

A. I do.

57 Q. You state that you have manufactured from eight hundred to one thousand hydrants with loose cases substantially like those described in the specifications in "Exhibit Bailey's Reissue" or in the model, "Exhibit Bailey's Original Model." State where you have delivered those hydrants, in a general way.

(Objected to as immaterial.)

A. We have not manufactured any like that "Bailey Original Model." We have manufactured all with loose cases like the model "Exhibit Bailey's Original Model." I can tell a few places. Allegan, Mich.; Madison, Ind.; Michigan City, Ind.; Kalamazoo, Mich.; Bloomington, Ill.; Lansing, Mich.; Ionia, Mich.; Toledo, Ohio; Muskegon, Mich.; Saginaw City, Mich.; Detroit water-works, Detroit, Mich.; Bellevue, Ohio; Winfield, Kansas.

58 Q. Upon each of these hydrants state exactly what marks you have placed thereon and how, if any, to show that they were patented under the Bailey patents.

(Same objections.)

A. They all had the marks as follows: "T. R. Bailey; patented March 10, 1868; reissued March 14, 1876." The date of any of our own patents were added on if any were made that way.

241 Cross-examination:

59 C. Q. Was the "Exhibit Bailey-Flower Contract" acted on in any way except by your paying the expenses of procuring the reissue?

A. It was not, if I understand you right.

60 C. Q. Did you ever see T. R. Bailey before the reissue 6990 was procured?

A. Once, I believe. I think it was at Cleveland the first time I saw him. I won't be certain whether it was at Cleveland or Lockport I saw him first, but I have only seen him three times; once in Cleveland, once in Lockport, and the other time when he came to Detroit and got his money. I haven't seen him from that time until he came here to testify.

61 C. Q. Did you ever make a hydrant with a cylindrical valve like that shown and described in "Exhibit Bailey Reissue No. 6990?"

A. We have not. We have patterns to make them, though, for four-inch hydrants.

62 C. Q. Do you find any such cylindrical valve in the "Exhibit Defendants' Model," or has either of the hydrants in the city of Detroit, to your knowledge, any such cylindrical valve?

A. I think not, as regards the city of Detroit; I don't know. "Exhibit Defendants' Model" has a conical valve, the same as the old Bartholomew hydrant originally had.

63 C. Q. Didn't you write a letter to the clerk of the circuit court of the United States at Boston, Mass., early in the year 1878, and enquire of him how the case of Mathews *et al.* against the Boston Machine Co. stood, and did you not receive a reply from the clerk of that court that the bill of complaint in that case had been dismissed?

242 A. I did. There is his reply.

By Mr. HILL: I offer it in evidence, marked "Exhibit Stetson Letter."

64 C. Q. Didn't you know, in the year 1872, that the City of Detroit procured hydrants of the construction represented by "Exhibit Defendants' Model," and that the same were put to use at that time within that city?

A. No; I don't remember when it was. I remember there were some.

65 C. Q. Were you manufacturing hydrants in the year 1872?

A. I think I said before 1872 or 1873, but not this description of hydrant.

66 C. Q. Were you not sufficiently interested in the subject of hydrants to ascertain as early as 1872 or 1873 what kind of hydrants were being procured and put to use by the City of Detroit?

A. No; I was not enough interested to look after them particularly.

67 C. Q. You have testified, in your direct examination, that you knew R. D. Wood & Co., of Philadelphia, were manufacturing hydrants represented by "Exhibit Defendants' Model" some two or three years before receiving their circular, which bears date April 17, 1876, and is marked "Exhibit R. D. Wood & Co.'s Circular." How did you derive your knowledge of their manufacture?

A. By seeing their bids for pipe and hydrants at different places where they were required, as we were selling valves at the time.

68 C. Q. How early did you know that hydrants of their manufacture were being used in the city of Detroit?

A. I think it was a short time before the letter of Mr. Bailey to me. I think it was a year before; I can't say exactly.

243 69 C. Q. Do you think you knew the fact as early as the year 1874?

A. I should think it was probably about 1874. I was not interested enough to take much notice of hydrants at that time; I was just getting into that business.

70 C. Q. Since 1874 you have known, have you not, that hydrants of R. D. Wood & Co.'s manufacture, of the construction represented by "Exhibit Defendants' Model," have been in use in the city of Detroit continuously?

A. Well, I think they have, because nobody else could get a bid in.

71 C. Q. Do you remember that early in the year 1873, while you were a member of the common council of the city of Detroit, you offered a resolution providing, among other things, that the board of water commissioners and the fire commission be notified to send to the council monthly statements of the books of their offices, and that the monthly statements so received be published monthly with the common council proceedings, and that such resolutions were adopted?

A. I don't remember now about it; probably I might have done so.

72 C. Q. Do you remember that since that time the acts of the board of water commissioners and of the fire commission have been published periodically, so as to be readily accessible to the citizens of Detroit, and so as to make it easy for any one who so wished to inform himself as to the number of hydrants procured for the city, and from whom procured?

A. I know the water-works do, for they send me one every year. They sent me one a few days ago. As regards the fire department, I have not seen one that I know of for several years; not one of their reports.

244 73 C. Q. Did you not know in the year 1876, about the time you bought the reissue in suit, that many hydrants constructed as represented by "Exhibit Defendants' Model," and manufactured by R. D. Wood & Co., were in use in the principal streets of the city of Detroit?

A. I knew there were some.

74 C. Q. If, as a matter of fact, there were over three hundred such hydrants in use in the city of Detroit, what proportion of that number did you know of at that time, either from seeing them or from examination of the published reports concerning them?

A. I could not say.

75 C. Q. State to the best of your remembrance and belief.

A. I never went around to count them; I saw some; I couldn't say how many.

76 C. Q. Since you have owned the Bailey reissue No. 6990, you have known, have you not, that from year to year hydrants con-

structed as represented by "Exhibit Defendants' Model," and manufactured by R. D. Wood & Co., have been added to the number in use in the city of Detroit?

A. I have by the fire department breaking the city charter by not advertising for bids, as the old charter called for. They have been bought without giving other parties a chance to bid.

77 C. Q. Have you taken any pains to ascertain how many such hydrants of such construction and manufacture have been procured in all and put to use in the city of Detroit?

A. I have not.

78 C. Q. You could readily have done so, could you not, at any time during the last eight years?

A. I don't know.

245 79 C. Q. Have you been a member of the common council, and not have found out that you could have readily obtained the information mentioned in the last preceding interrogatory if you had so chosen?

(Objected to as immaterial and unimportant.)

A. It is a good many years ago that I was a member of the common council. I don't know what they do in it now. I don't know whether they would have given me the information if I had called at the office, and that is the only place I know of where I could get it.

80 C. Q. Well, you have known, have you not, that during the interval between 1876 and 1881, hydrants of R. D. Wood & Co.'s manufacture were set already for use on Jefferson avenue, Brush and Atwater streets, within sight of your shop?

A. I don't know but what they might have been. I have not taken particular notice of them. I don't know whether they have or not.

81 C. Q. It has been a matter of indifference, has it, so far as you have been concerned, whether R. D. Wood & Co.'s hydrants have been set ready for use in the streets in the city of Detroit during the last eight years or so?

A. Not exactly a matter of indifference. My time is taken up at the shop from half after six in the morning until nine at night, and I have very little time to run around in the day time, and that is the reason they may have been set without my seeing them.

82 C. Q. You made some hydrants, did you not, before you ever corresponded with T. R. Bailey, having loose cases with end play?

A. I think we did—taper-joint hydrants.

83 C. Q. And you found out before such correspondence
246 that R. D. Wood & Co. or Mr. Samuel R. C. Matthews had a patent for such a loose case with end play, did you not?

A. He claimed he had. That is all we knew. We did not find out whether he had or not.

Direct examination resumed:

84 Q. When you say that the said Mathews claimed he had a patent, please state further in that connection where and when, and

how often, you have heard him make such claim, and the circumstances under which he made the same?

A. I think the first time I heard him make that claim was at Muskegon, when they let out their water-works bid there, ten or twelve years ago. He notified the members of the water board that he would sue other parties who put in a hydrant with a loose case.

85 Q. That is one time; now give another.

A. I could give almost any place I have met him where there were bids to be let out. He has made the same claim every time. Sometimes he was going to sue me, and others have told me the same, that he claimed we were infringing on his patent, and they would be sued if they use the Bailey patent hydrant.

86 Q. Name some of those places?

A. The last time he spoke about suing was in Hamilton, Ohio, last spring. He told me as soon as the case was decided in his favor in the United States Supreme Court that he should stop every one from using loose frost cases.

Adjourned at 5 p. m. until March 8, at 10 a. m.

MARCH 8—10 a. m.

Direct examination continued.

87 Q. Then I understand you to say that you have met
247 Mr. Mathews repeatedly and in different places since you commenced to manufacture hydrants with loose cases upon them, and that he had claimed as often that you were infringing his patent for substantially the same device; am I correct?

(Objected to as leading.)

A. You are.

88 Q. For what purpose were you and he present so as to meet at such places generally?

A. Giving in bids to new water-works for hydrants and valves.

89 Q. In regard to the "Exhibit Flower Circular," you stated that they were sent out shortly after date, which is March 31, 1876. Please state now, if you can, more definitely and particularly, where they were sent and when sent, respectively.

A. They were sent within a few days of that. I have a list here of the places to which they were sent, with the dates of sending the same.

April 3, 1876.—R. D. Wood & Co., Philadelphia, Pa.; Boston Machine Co., Boston, Mass.; Detroit fire commissioners, city.

April 4.—G. C. Morgan, Chicago, Ill.; sup't Hyde Park, W. W., Ill.; sup't Lake View, Ill.; Crane & Co., Ill.; board [of] public works, Chicago, Ill.; Mr. Gregier, eng'r, Chicago; Mr. Lane, eng'r, Milwaukee, Wis.; C. A. Chappen, Chicago, Ill.

April 8.—Michigan.—Port Huron, Bay City, East Saginaw, Saginaw City, Grand Rapids, Marquette, Kalamazoo, Jackson.

Ohio.—Canton, Toledo, Chillicothe, Cincinnati, Columbus, Sandusky, Dayton, Delaware, Hamilton, Lima, Mansfield, Napoleon, Norwalk, Painesville, Portsmouth, Salem, Springfield, Steubenville, Tiffin, Youngstown, Zanesville.

248 Indiana.—Evansville, Goshen, Indianapolis, Lafayette, Logansport, Madison, Michigan City, New Albany, South Bend, Terre Haute, Valparaiso.

Illinois.—Alton, Aurora, Belleville, Belvidere, Bloomington, Cairo, Canton, Champaign City, Danville, Decatur, Elgin, Freeport, Fulton City, Galesburg, Jacksonville, Joliet, La Salle, Mason City, Ottawa, Pekin, Peoria, Quincy, Rockford, Rock Island, Springfield.

Iowa.—Burlington, Cedar Rapids, Council Bluffs, Davenport, Des Moines, Dubuque.

Missouri.—Kansas City.

Kentucky.—Covington, Newport, Louisville, Dennis Long & Co.

Louisiana.—New Orleans.

New York.—Albany, Auburn, Brooklyn, Buffalo, New York, Syracuse, Troy, Yonkers.

Massachusetts.—Cambridge, Lowell, Lynn, New Bedford, Salem, Somerville, Springfield, Worcester.

New Hampshire.—Concord, Manchester.

Connecticut.—Hartford, New Haven.

New Jersey.—Jersey City.

Tennessee.—Memphis.

Rhode Island.—Providence.

Maine.—Portland.

Ontario.—Montreal, New London, Toronto.

Pennsylvania.—Pittsburgh, Philadelphia; W. W. Harding, Philadelphia, Pa.

C. F. Rapp, Cincinnati, Ohio; Carroll C. Gray, St. Louis, Mo.; Michael Folliard, Brooklyn, N. Y.; Wm. T. Travis, Flatbush, N. Y.; S. W. Lewis, Cincinnati, Ohio; R. T. H. Stellman, Philadelphia, Pa.; Charles S. Glover, Bay City, Mich.; Baltimore, Md.

Alabama.—Monticello, Mobile, Selma, Tuscaloosa.

Arkansas.—Little Rock.

249 California.—Los Angeles, Marysville, Napa City, Oakland, Sacramento, San Francisco, San Jose, Stockton.

Colorado.—Boulder City, Denver.

Dakota.—Yankton.

Delaware.—New Castle City, Dover, Smyrna, Wilmington.

District of Columbia.—Georgetown.

Florida.—Jacksonville.

Georgia.—Atlanta, Augusta, Columbus, Macon, Savannah.

Kentucky.—Bowenville, Frankfort, Henderson, Lexington, Maysville, Owensborough, Paducah, Paris.

Louisiana.—Baton Rouge, New Orleans, Shreveport.

Maryland.—Annapolis, Baltimore, Cumberland, Frederick, Hagerstown, Havre de Grace, Westminister.

Minnesota.—Faribault, Minneapolis, Mankato, Rochester, Red Wing, St. Paul.

Mississippi.—Natchez, Vicksburg.

Missouri.—Mr. Allan, St. Louis; Hannibal.

Nebraska.—Omaha.

Nevada.—Virginia City.

New York.—Oswego, Rochester.

North Carolina.—Wilmington.

Ohio.—Akron.

Oregon.—Portland.

Pennsylvania.—Allegheny, Allentown, Altoona, Ashland, Bellefontaine, Bethlehem, Carlisle, Carbondale, Chambersburg, Chester, Coopersville, Columbia, Danville, Canton, Erie, Franklin, Harrisburg, Hazelton, Hollidaysburg, Huntington, Johnstown, Lancaster, Lebanon, Lewiston, Lockhaven, McKeesport, Mahoning City, Meadville, Milroy, Minersville, Mountjoy, New Castle, Norristown, Oil City, Pottstown, Pottsville, Reading, Scranton, Sharon, Shamokin, Sunbury, Tamaqua, Titusville, Westchester, Wilkes Barre, Williamsport, York.

South Carolina.—Charleston.

Tennessee.—Chattanooga, Nashville, Memphis.

Texas.—Austin.

Virginia.—Alexandria, Norfolk, Peterborough, Richmond.

West Virginia.—Wheeling.

Wisconsin.—Fond du Lac, Madison, Racine.

New York.—New York city, Albany, Albion, Amsterdam, Auburn, Ballston, Batavia, Binghampton, Brockport, Brooklyn, Buffalo, Camden, Canandaigua, Catskill, Coshocton, Dansville.

April 10.—Dunkirk, Elmira, Flushing, Geneva, Gloversville, Goshen, Greenbush, Haverstraw, Hornellsville, Hudson, Ithaca, Jamestown, Johnstown, Kingston, Lyons, Medina, Mount Vernon, Newburgh, Niagara Falls, Ogdensburg, Oswego, Palmyra, Port Jarvis, Poughkeepsie, Rochester, Rome, Saratoga Springs, Schenectady, Seneca Falls, Sinclairville, Syracuse, Tonawanda, Troy, Utica, T. Hopper, agent; T. W. Chrissy, Troy; H. G. Ludlow, Troy; Watertown, Waterloo, Platt, Jr., Waterford.

Alabama.—Montgomery, Selma.

California.—Oakland.

Connecticut.—Bridgeport, Danbury, Hartford, Meriden, Middletown, New Britain, New Haven, Norwalk, Norwich, Stamford, Waterbury, Winchester.

District of Columbia.—Washington.

Iowa.—Keokuk, Lansing, Lyons, Marshalltown, Marshall, Mount Pleasant, Muscatine, Ottumwa, Sioux City, Waterloo.

Kansas.—Leavenworth City, Topeka.

Maine.—Augusta, Bangor, Bath, Biddeford, Calais, Gardiner, Lewiston, Portland, Rockland, Saco, Skowhegan, Waterville.

Massachusetts.—Adams, North Adams, Amesbury, Athol Centre, Attleborough, Barnstable, Beverly, Boston (2), Brockton, Cambridge, Chelsea, Fall River, Fitchburg, Gloucester, Greenfield, Haverhill, Holyoke, Hyde Park, Lawrence, Lancaster, Lowell, Lynn, Marblehead, Marlborough, Middleton, Nantucket, Nantuck, New Bedford, Newburyport, Newton, Northampton, Peabody, Pittsfield, Plymouth, Princtown, Quincy, Rockport, Salem, Springfield, Stoneham, Stoughton, Taunton, Wakefield, Waltham, Ware, Westfield, Weymouth, Winchendon, Woburn, Worcester (2).

New Hampshire.—Claremont, Concord, Dover, Exeter, Keene, Laconia, Manchester, Nashua, Portsmouth, Rochester, Somersworth.

April 13.—New Jersey.—Atlantic City, Bordentown, Bridgeton, Burlington, Camden, Elizabeth, Hoboken, Hackensack, Gloucester, Highstown, Jersey City, Key Port, Long Branch, Millville, Morristown, Mount Holly, Newark, New Brunswick, Orange, Patterson, Perth Amboy, Princeton, Plainfield, Rahway, Redbank, Salem, Sommerville, Trenton, Vineland, Woodbridge.

Pennsylvania.—Bristol, Butler, Clearfield, Conneautville, Corry, Greenburg, Honesdale, Kittanning, Mechanicsburg, Milton, Newbright, Parker's Landing, Rochester, Pittsburgh, Schuylkill Haven, Shippingsburgh, St. Clair, Stroudsburg, Tonawanda, Tyrone, Union City, Washington, Warren.

Rhode Island.—Bristol, Newport Manufacturing Co., East Greenwich, Johnston, Lincoln, Newport, Pawtucket, Providence, Warren, Westerly, Woonsocket.

252 Vermont.—Bennington, Brattleborough, Burlington, Montpelier, South Royalton, St. Albans, Johnsbury, Vergennes, Woonsocket.

Gloucester Pipe Works, Jersey City; Warden & Tricker, Cincinnati; Cummings & Son, Cincinnati.

June 16, 1876.—Chapman Valve Co., Kelly street, Boston, Mass.

July 28.—P. Whitty, city engineer, Houston, Texas; board of trustees, Marion, Ind.; Shelby Iron Co., Shelby, Ala.; Jas. Sweitzer, Marion, Grant Co., Ind.; J. D. Cook, C. E., Toledo, O.; Low & Harlow, C. E., 9 Pemberton Square, Boston, Mass.; Evans, Delzell & Co., Pittsburgh, Pa.; National Tube Works Co., McKeesport, Boston, Mass.; Ludlow Valve Co., Troy, N. Y.; Pete Valve Co., Boston, Mass.; Mohawk & Hudson Manufacturing Co., Waterford, N. Y.; Armstrong & Hutchinson, Allegheny, Pa.; H. R. Worthington, 61 Beekman street; McNeals & Archer Pipe Works, Burlington, N. J.

90 Q. How were these circulars sent?

A. By mail, postage paid, except one, which was left personally at the fire commissioners' office in Detroit.

91 Q. In regard to the action of the cylindrical valve in the Bailey patent, "Exhibit Bailey Original Model," as compared with the conical valve in "Exhibit Defendants' Model," and the hydrants thus constructed, respectively, have you anything further to say?

A. The operation of the cylindrical valve to let water into the stock of the hydrant is by raising the valve up; to let water into the hydrant with a conical valve is by screwing the valve down. They both answer the same purpose, except the modes of opening and closing are different.

253 92 Q. How happened you to write a letter to Mr. Stetson, clerk of the United States court at Boston, to which "Exhibit Stetson Letter" is, as you have said, an answer?

A. I think it was to find out what the case was thrown out of court for. We never found that out.

93 Q. What other steps, if any, did you take, either before or after receiving this letter, to find out the attitude of the litigation in Boston between Mr. Mathews and others and the Boston Machine Co.?

A. I think I inquired of Mr. Carr, who was, I believe, the superintendent of the Boston Machine Co., at two different times when in Boston. He gave me no information on the subject whatever.

94 Q. Please look at the brown model before you, "Exhibit Bailey Original Model," as well as the "Exhibit Defendants' Model" and the "Exhibit Flower Model," and state whether or not it is correct to say that the loose case is now flush with the flange or bead on the stock of each.

(Objected to as immaterial.)

A. It is a mechanical term. When anything is driven clear up as far as it can go it is "flush," the same as these three loose cases are now.

95 Q. In constructing models of this character what is the proportion of the parts of the model, relatively, to that of the manufactured article?

(Objected to, as far as relates to "Exhibit Bailey's Original Model," which this witness did not construct, and as to which his testimony on this point is inadmissible and incompetent.)

A. In making my own models I have never looked after any relative proportion as long as it shows the device properly and the model comes within the ruling of the Patent Office as regards size.

254 96 Q. You have taken out letters patent for articles of manufacture in your line of business when you have furnished models with drawings and specifications, have you not? If so, how many, as near as you can remember?

A. I have taken them out both with models and without; eight or ten with models, drawings, and specifications.

97 Q. When you commenced to manufacture hydrants as a business in 1872 or 1873, as you have stated, of what construction were the hydrants then used in the city of Detroit other than those manufactured by R. D. Wood & Co.?

A. I think they were the old Bartholomew hydrants principally; at least, I don't remember any other.

98 Q. Have you a model of hydrants of that construction?

A. I have. I think that is about as near as I can get it. It may not be in exact proportion, but the principles are the same.

By Mr. HILL: I offer this in evidence, marked "Exhibit Old Bartholomew Hydrant."

(Mr. Roberts objects to its introduction as immaterial and irrelevant to the issue in this cause.)

99 Q. State whether or not your firm have manufactured hydrants of that construction.

(Same objection as to the model.)

A. We have not.

100 Q. Have you repaired the same?

(Same objection.)

A. We have some.

101 Q. You are familiar with the actual construction, are you not, and the manner of setting them in the ground?

(Same objection.)

255 A. I am.

102 Q. How were they protected?

(Same objection.)

A. With a wood case or box around them covering the entire hydrant, with a cover at the top that would open.

103 Q. Have you a model of the box referred to?

(Same objection.)

A. This is a model of the box they used here on the old Bartholomew hydrant.

By Mr. HILL: I offer it in evidence, marked "Exhibit Box, Old Bartholomew Hydrant."

(Same objection.)

104 Q. State whether or not you have seen the hydrants known as the Cregier hydrants, now in use in the city of Chicago.

(Same objection.)

A. I have never seen the hydrant out of the ground. I have seen drawings of his patent from the Patent Office, and the way those which I saw in Chicago were protected was by a wall of brick or stone up level with the sidewalk and covered with a platform to protect the stock of the hydrant.

105 Q. How were the old Bartholomew hydrants protected from the action of the frost?

(Same objection.)

A. They used to fill this wooden box with manure or tan-bark or something like that.

106 Q. The well you speak of around the Cregier hydrant is for the same purpose, is it not?

(Same objection.)

A. I should think so; that is what I suppose it is for.

107 Q. In hydrants constructed with a loose case like the
256 "Exhibit Bailey's Original Model," "Exhibit Defendants' Model," and "Exhibit Flower Model," is there any necessity for such casing or protection and the use of manure or tan-bark? If not, why not?

A. No; there is no need of anything of the kind if there is good waste, and it can soak or be taken away from the stock of the hydrant, as in some soils, where the dirt protects the waste of the hydrants, the waste water from the hydrant fills the ground up to the

sidewalk—that is, where there is no sewerage or contrivance to take it away in clay ground. I might say further they sometimes stop the waste up and pump the hydrant out after they have done using it.

108 Q. What protection is this box outside of the Bartholomew hydrant against the upheaval by frost of the hydrant?

A. The protection is so that they can fill it with manure or tan-bark so the frost cannot get to the hydrant to upheave it.

109 Q. Then the loose case dispenses with the necessity of the box and the manure or tan-bark, does it not; and, if so, how?

(Objected to as leading, immaterial, and irrelevant.)

A. It does dispense with the box and tan-bark by being part and parcel with the hydrant and heaving with the frost and protecting the stock of the hydrant from heaving with the frost.

110 Q. I notice in "Exhibit Box, Old Bartholomew Hydrant" a slot or hole near the top—elongated; for what purpose is that?

(Objected to as immaterial and irrelevant.)

A. It answers two purposes: the first one is in setting that box in the ground the depth may vary an inch or two; the next purpose is to allow and have plenty of room to get the box over the hydrant when the hydrant is set.

257 Cross-examination resumed:

111 C. Q. Doesn't that elongated hole in the box of the old Bartholomew hydrant serve another purpose, namely, to prevent the lower edge of the hole from striking against the under side of the nozzle when the box is upheaved by the frozen ground around it?

A. It will do that, providing the frost ever got to the bottom of the box to upheave it.

112 C. Q. Is it your idea of the action of the frost in the ground by which hydrant cases are upheaved that the ground must be frozen down to the bottom of the case before any upheaval takes place?

A. It is, in a taper box of that description, as it commences to freeze on the surface first, and the power of the frost on the surface would be sufficient to raise the taper box out of the ground.

113 C. Q. You never knew, then, from personal observation that the frozen ground would upheave such a box as that you have described used with the old Bartholomew hydrant, although not frozen down anywhere near the bottom of such box?

A. It couldn't raise it up without it was perfectly loose soil around it; it would break off from the box rather than raise it, as they used to ram them in in this city.

114 C. Q. You have mentioned the Boston Machine Co., and it appears from the list given in your answer to interrogatory 89 that you sent it one of your circulars April 3, 1876. What did you know of that company at that time?

(Objected to as immaterial.)

258 A. I knew they were manufacturers of valves and hydrants, as we had bids in where they had in several places, and I think they had corresponded with us before then.

115 C. Q. Did you know at that time what was the construction of the hydrants manufactured by the Boston Machine Co.?

A. I think I did. They manufactured under the Coffin patent. I ascertained the construction of the hydrants from wood-cuts which they sent me of hydrants set in the ground, but never out at that time.

116 C. Q. From what you learned from the wood-cuts sent you, and from seeing what was exposed of their hydrants set in the ground, you knew, did you not, at that time that the hydrants so manufactured by the Boston Machine Co. had loose cases with end play?

(Objected to as immaterial.)

A. I knew, because I had copies of the Patent Office drawings and specifications of their hydrants—the Coffin patent I mean.

117 C. Q. And after April, 1876, did you find that company bidding for the sale of their hydrants in competition with your bids?

A. I don't remember as I did. On reflection, I think they have been bidding by letter.

118 C. Q. When were you in Boston on the occasions of your going to see Mr. Carr, superintendent of the Boston Machine Co., as you have mentioned?

A. I have been to Boston several times, and have called there several times. The last time was two years ago last fall. I was there before the Mathews suit was begun against them, and twice since, I think.

119 C. Q. Did you ever give the city of Detroit or the fire
259 commission or the board of water commissioners any other notice of your claims under the Bailey patent reissue No. 6990 than the delivery of a copy of your circular, "Exhibit Flower Circular," at the office of the fire commission April 3, 1876?

A. They had one regular circular for hydrants every year, sometimes oftener. Only one of "Exhibit Flower Circular" was served with my knowledge.

120 C. Q. Did either of your regular circulars, which you have mentioned in the last preceding answer, contain a charge that the recipient was making, using, or vending any hydrant covered by the said Bailey patent reissue No. 6990, or any charge of infringement thereon?

A. They did not.

121 C. Q. Is the present suit the first one that you ever brought against anybody for alleged infringement upon the Bailey patent reissue No. 6990?

(Objected to as immaterial and unimportant.)

A. It is.

122 C. Q. For what purpose did you procure the reissue No. 6990 to be obtained and purchase the same?

(Objected to as immaterial and incompetent.)

A. To protect ourselves against others, Mr. Mathews in particular, as he had threatened to sue us for making hydrants with loose frost cases prior to our purchase.

Direct examination resumed:

123 Q. At the time Mr. Mathews called on you in March, 1877, you had got all ready to begin a suit against R. D. Wood & Co., and employed counsel for that purpose, had you not?

(Objected to as grossly leading.)

A. We had.

260 124 Q. What had the Boston Machine Co., if anything, asked you to do in the matter of this litigation in Boston at that time?

(Objected to as immaterial, irrelevant, inadmissible, and incompetent, and as not opened by the cross-examination.)

A. We received a letter from them asking us to furnish all the information we could as to hydrants with loose cases.

Cross-examination resumed:

125 C. Q. Did you furnish such information to the Boston Machine Co.?

A. We furnished all the information we knew of at that time regarding the Bailey hydrant.

126 C. Q. When was that?

A. It was some time about the beginning of that trial. I know they stated in their letter that Wood & Co. had sued them on the loose cases.

JAMES FLOWER.

MARCH 8—2 o'clock p. m.

By Mr. HILL: The plaintiffs, on the hearing, will read in evidence section 8 of an act of the Legislature of the State of Michigan, approved March 18, 1871, entitled "An act to create the fire commission of the city of Detroit;" also section 11 of said act; also section 1 of chapter 1 of title 1 of an act to provide a charter for the city of Detroit and to repeal all acts in conflict therewith, approved June 7, 1883; also section 2 of chapter 4 of title 1 of said act.

261 JAMES E. TRYON, a witness produced and sworn on behalf of the plaintiffs, testifies as follows:

1 Q. What is your name, age, residence, and occupation?

A: James E. Tryon; age, 33; residence, Detroit; occupation, secretary of the fire commission of the city of Detroit.

2 Q. How long have you been such secretary?

A. Since 1880.

3 Q. Please examine the brass model before you, "Exhibit Defendants' Model," and state whether or not hydrants of that construction are now in use in the city of Detroit.

A. Yes, sir.

4 Q. Have you any means of knowing how many?

A. Yes, sir.

5 Q. State the means.

A. The records of the fire commission and my own knowledge of the affairs of the department.

6 Q. Have you examined those records recently for the purpose of ascertaining such fact?

A. Yes, sir.

7 Q. Please state the number of such hydrants put in use by the fire commission of the city of Detroit, giving the year in which they were put in and the number in each year, respective[ly].

A. The records of the fire commission which are in my custody show that since 1872, including that year, hydrants have been purchased of R. D. Wood & Co., of Philadelphia, by the fire commission as follows: 1872, 81; 1873, 16; 1874, 72; 1875, 100; 1876, 50; 1877, 78; 1878, 39; 1879, 66; 1880, 45; 1881, 60; 1882, 30; 1883, to July 1st, 39—making in all up to that time 676.

262 8 Q. How many, of your own knowledge, do you know have been purchased of the number?

A. I am positive as to 129, these being purchased in the years 1881, 1882, and up to July 1, 1883.

Cross-examination:

9 C. Q. What publicity has been given to these purchases of hydrants, and what facilities have been given to any citizens interested for ascertaining from year to year the facts of such purchases of the hydrants mentioned?

A. In paying for the hydrants warrants were drawn on the city treasurer, and on the face of the warrants it was stated that such warrants were drawn in payment of hydrants purchased. Once in each year the fire commission submits to the common council a report of its operations for the preceding fiscal year. Included in such report is a detailed statement of the expenditures of the commission, such statement giving the date on which every warrant is drawn, the number of the warrant, and the number of the voucher; the name of the person to whom the warrant is made payable, what such warrant is drawn for, and the amount of the same. These reports are printed in pamphlet form for distribution among the tax-payers of the city. Two hundred and fifty unbound copies are given to the city clerk, who has them bound in book form, together with the reports of city officers and municipal boards. These reports are distributed. The report of the fire commission is annually given to the newspaper press of the city, and each paper prints abstracts of the same, generally giving all the important feat-

263 ures of the report. The reports themselves have been published in detail annually, beginning with the year 1873, which was published January 31, 1874.

(Question and answer objected to as immaterial and incompetent.)

10 C. Q. By what authority have these reports been published, if you know?

(Same objection.)

A. The reports are published in accordance with the requirements of the act creating the fire commission. The publication of the detailed statements of expenditures was due to a resolution adopted by the common council February 4, 1873. The resolution was offered by Alderman James Flower.

11 C. Q. Is there on record in any books of the fire commission any notice from James Flower & Brothers, or either of them, that the fire commission of the city of Detroit was or has been infringing upon the patent of Thomas R. Bailey, reissue No. 6990, or have you, during your official connection with the fire commission, had any personal knowledge of any such notice?

A. There is nothing on the records in the form of a notice from Flower & Bros., or either of them, in relation to any infringement on any patent, and since I have been secretary of the commission I have received no notice from Flower & Bros., or either of them, that the fire commission or the city of Detroit was infringing on any patent up to the time of the beginning of this suit.

Direct examination resumed:

12 Q. Who was your predecessor in office as secretary of the fire commission?

A. Frederick H. Seymour.

264 13 Q. Was he such secretary in the year 1876?

A. Yes, sir.

14 Q. Has the fire commission, to your knowledge, in the purchase of fire hydrants, ever published proposals, or in any way asked for bids from manufacturers thereof?

(Objected to as immaterial and irrelevant.)

A. We are not required to publish proposals nor solicit bids, but, as far as my knowledge goes, we have, in several cases, requested parties to furnish us hydrants.

JAMES E. TRYON recalled.

15 Q. In the use of these hydrants from what source is the water derived, and under whose control is it?

A. The water is derived from the water-mains, under the control of the board of water commissioners of the city of Detroit.

JAMES E. TRYON.

GEORGE FLOWER, a witness produced and sworn on behalf of the plaintiffs, testifies as follows:

1 Q. What is your name, age, residence, and occupation?

A. George Flower; my age is 58; residence, Detroit, and occupation, a machinist. I am a member of the firm of James Flower & Bros., and one of the plaintifis in this suit.

2 Q. How long have you been a machinist?

A. I was taken to work at nine years of age, and have worked at it ever since that time.

3 Q. Please examine "Exhibit Flower Circular," and state who, if you know, served a copy of the same on the fire commission of the city of Detroit?

A. I did.

265 4 Q. When?

A. Early in April, 1876.

5 Q. To whom did you deliver it?

A. To the secretary, Seymour, of the fire commission, at their office, corner of Wayne and Larned streets, in the city of Detroit.

6 Q. Do you know one Samuel R. C. Mathews?

A. Yes, sir.

7 Q. State whether or not you were present at any interview between him and Mr. James Flower which you now remember. If yea, state when and where that interview took place.

A. I was; in our office, in 1877, in the early part of March.

8 Q. Did you hear all the conversation which took place on that occasion?

A. I did.

9 Q. Please detail the same, stating as near as you can now remember substantially what Mr. Mathews said, what Mr. James Flower said, and what you said on that occasion.

A. As near as I can remember, Mr. Mathews wished us to wait and not commence suit before the Boston suit was finished, and then he said he thought that as business men we should come together and arbitrate our difference instead of carrying it into court. I don't exactly remember what my brother said, but I said, "We shall see about that."

10 Q. At that time you had taken counsel and employed attorneys, and made preparations for the commencement of a suit against Mr. Mathews and the firm of R. D. Wood & Co. for infringement of the Bailey patent, had you not?

(Objected to as leading.)

A. Yes, sir.

266 11 Q. Please examine the claims which conclude the specifications Bailey's reissue, and also at "Exhibit Defendants' Model," and state which of them you claim are infringed by the defendants in this suit as well as by R. D. Wood & Co., of Philadelphia.

(Objected to as inadmissible and incompetent, the interpretations of the claims being matter of law for the court, and the witness not being qualified as an expert upon any matters of fact involved in the comparison of the structures inquired about.)

A. First claim and the third claim.

12 Q. Please compare the brown and the brass models, "Exhibit Bailey's Original Model" and "Exhibit Defendants' Model," and state the number of parts as specified in the third claim of said

letters patent which you find are common to both and specify the parts.

(Same objection.)

A. The supply-pipe is one, the valve at the bottom, the loose case, the stand-pipe or stock, the stuffing-box and the nozzle.

13 Q. What is a hydrant?

A. A hydrant is constructed for washing down, drawing water, and for fire purposes.

14 Q. Can you construct a hydrant without a valve?

A. It could be constructed without a valve where they use a stop cock or valve on the main. There are a great many put in that way.

15 Q. What is the difference in the valves in the two models, if any?

A. One is a conical valve, in this model, "Exhibit Defendants' Model," the other is a cylinder valve.

16 Q. In your opinion as a mechanic, as you find them in
267 these two models, "Exhibit Bailey's Original Model" and "Exhibit Defendants' Model," are they mechanical equivalents or not, and give your reason for such opinion.

(Objected to as leading and as incompetent, the witness not having been qualified as an expert to make the comparison nor shown to have any knowledge of what is meant by the term mechanical equivalent.)

A. They are. One shuts the water off from flowing into the stand-pipe by screwing it up, and the Bailey's model shuts it off by screwing it down.

17 Q. What are they used for?

A. They are both used for letting the water off and on.

Cross-examination:

18 C. Q. You have said, in answer to interrogatory 14, that there are hydrants to which the water is let on and from which the water is shut off by the use of a stop cock or valve on the main. Do you call such a stop cock a mechanical equivalent for either of the valves in the hydrants like "Exhibit Bailey's Original Model" and "Exhibit Defendants' Model?"

A. It is shut precisely the same as those valves. It shuts the water off and lets it on. It answers the same purpose.

19 C. Q. You say, in answer to interrogatory 10, that early in the year 1877 you had taken counsel and employed attorneys and made preparation for commencing suit against R. D. Wood & Co. What counsel had you then taken, what attorneys employed, and what preparations made?

A. We had taken advice from Mr. D. M. Leggett, of Cleveland. We had employed him and no other attorney at that time We got all the information we could get on the Bailey patent and that is all.

268 20 C. Q. Did you ever, at any time, instruct Mr. M. D. Leggett to draw the papers ready for a suit on the Bailey patent?

A. Not to my recollection. I don't remember giving instructions.

21. C. Q. Do you remember that any instructions to prepare for a suit or to bring a suit in the "Bailey patent reissue, No. 6990," were ever given by you or your brother to any lawyer, until you employed Mr. E. J. Hill, in this suit?

A. Not to commence suit. Mr. Leggett had the case in hand to look it up.

22 C. Q. Did you ever actually threaten anybody with suit upon the Bailey patent?

A. Only by this notice "Exhibit Flower Circular."

GEORGE FLOWER.

Adjourned at 5 p. m. to Monday, March 10, at 10 a. m.

MONDAY, *March* 10—10 a. m.

WILLIAM A. PENDRY, a witness produced and sworn on behalf of the plaintiffs, testifies as follows:

1 Q. What is your name, age, residence, and occupation?

A. William A. Pendry; age, 40; residence, 625 Third avenue, Detroit; occupation, chief engineer for D. M. Ferry & Co., importers and growers of seed, a corporation under the laws of the State of Michigan.

2 Q. How long have you resided in the city of Detroit?

A. Thirteen years.

3 Q. Where did you reside before that?

269 A. Brockville, Ontario, engaged as a locomotive engineer for one year. Before that, at Boston, Mass., for about three years, engaged as a mechanical draughtsman part of the time for John Charles Chapman, on the Chapman patent valve, and part of the time as machinist for Allen & Endicott. Before I went to Boston I was locomotive engineer for the Caledonia Mining Co., Cape Breton, N. S., for three years. Prior to that I was assistant engineer in British navy twelve months. Before that I was an engineer on the ocean mercantile marine for more than five years. Before that at Gloucester, England, with the Midland Railway Co., where I served my time, seven years. I was born at Hereford, England.

4 Q. When was your attention first called to what are now known as hydrants or fire-plugs?

A. That was when I was quite a boy, serving my time as mechanical engineer with the aforesaid railroad Co., at Gloucester, England.

5 Q. Can you give us a sketch of the first hydrant you ever saw?

(Objected to as immaterial and irrelevant to the issues in this cause.)

A. I can.

6 Q. Please do so, and indicate the parts thereof.

(Same objections.)

A. I have [done] so. Here is the sketch.

By Mr. HILL: We offer this in evidence, marked "Exhibit Pendry Sketch."

(Same objections.)

7 Q. Please describe the parts which you have thus indicated.

(Same objections.)

A. "A" is the main stock valve; "B," the stand-pipe, reach-
270 ing nearly to the surface; "C," the nozzle and secondary valve-seat; "D" is the secondary valve; "E" is the wooden jacket surrounding the whole.

8 Q. Of what form of construction was this wooden jacket?

(Same objections.)

A. Tapering the same as this one. This jacket was sometimes made square.

By Mr. HILL: Plaintiffs offer the model referred to in evidence, marked "Exhibit Pendry Model."

(Same objections.)

9 Q. What was this wooden jacket used for?

(Same objections.)

A. To enable the workmen to examine valve "A" without removing the earth; that is all.

10 Q. What was your first business after coming to Detroit?

A. Mechanical draughtsman for Detroit water-works.

11 Q. How long were you thus engaged?

A. About two months; then I was mechanical draughtsman for James Flower & Bros. for about five years; from about 1872 to about 1877.

12 Q. Please examine "Exhibit Bailey Original Patent" and state when and where and under what circumstances you first saw those letters patent and examined that drawing.

A. When I was with James Flower & Bros., in the fall of 1875; I couldn't tell the exact date. My attention was first called to it by the peculiar formation of the valve, and also that the jacketing around the hydrant was not shown as I supposed it should be—that is, no space was allowed for the raising of the jacket between its top line and bead around base of hydrant, thereby nullifying the evident intention of the inventor.

271 (Answer objected to as inadmissible and incompetent.)

13 Q. State, if you remember, what you did on thus discovering this defect.

(Objected to as inadmissible and incompetent.)

A. I wrote Mr. Bailey enclosing a tracing of the top of the hydrant.

14 Q. Have you that letter?

(Same objections.)

A. I have.

15 Q. Please produce it.

(Same objections.)

A. Here it is.

By Mr. HILL: The plaintiffs offer this evidence, marked "Exhibit Pendry Letter No. 1;" also the sketch enclosed, marked "Exhibit Pendry Tracing."

(Same objections.)

16 Q. I have another letter here, dated December 20, 1875, to "T. R. Bailey, Esq., Lockport, N. Y., signed James Flower, per W. P." Did you write that letter?

(Same objections.)

A. I did.

17 Q. Who for?

(Same objections.)

A. James Flower.

18 Q. State, if you know, the name of the attorney referred to in this letter.

(Same objections.)

A. Mr. Leggett, formerly Commissioner of Patents.

By Mr. HILL: We offer this letter in evidence, marked "Exhibit Pendry Letter No. 2."

(Same objections.)

19 Q. I would again call your attention to "Exhibit Pendry
272 Sketch" and ask if there is not another part to the old English hydrant therein shown; if yea, please indicate it by a letter and words indicating the part underneath the sketch.

(Objected to as immaterial and irrelevant.)

A. I have done so, and it is there indicated F, stuffing-box and gland.

20 Q. Please examine "Exhibit Old Bartholomew Hydrant," and state whether you ever saw any hydrants of that construction; if so, where and when.

(Same objections.)

A. Yes; in the city of Detroit; I couldn't say how many times during the last thirteen years. You can find one in use now on the corner of either Third or Fourth streets and the Holden road.

21 Q. Are you familiar with the construction of such a hydrant?

(Same objections.)

A. I am.

22 Q. Comparing that (referring to "Exhibit Old Bartholomew Hydrant") with "Exhibit Pendry Sketch," please state what parts you find common to both.

(Same objections.)

Adjourned at 12 until 2 p. m.

2 p. m. examination resumed.

A. Valve A, stand-pipe B, hose-nozzle C, stuffing-box and gland F. Each have the supply-pipe, which I have not marked in the sketch.

23 Q. Looking at the brown model before you, "Exhibit Bailey's Original Model," please state whether or not you ever saw it before; and, if yea, when and where.

273 A. I did, in James Flower & Bros.' office, in the city of Detroit, some time after writing this letter, "Exhibit Pendry Letter No. 2."

24 Q. Please compare this model with the drawing "Exhibit Bailey's Original Patent," and state whether the said drawing is a representation of the said model substantially.

(Objected to as immaterial, inadmissible, and incompetent.)

A. Yes, it is, with the exception that it does not delineate the frost case correctly.

25 Q. In what respect is it thus incorrect?

(Same objection.)

A. The model shows a space between the beading on base of fire-hydrant stand-pipe proper and top of the case.

26 Q. Please compare in a similar manner the said model with the drawing, "Exhibit Bailey Reissue."

(Same objection.)

A. I find the drawing to be correct in this case.

27 Q. Please examine "Exhibit Bailey's Original Patent," and state whether you find the case to which you have referred specified in the printed specifications; if so, state how.

(Same objection.)

A. Yes, it is mentioned in the first specification: "A hydrant or water-plug constructed substantially as shown and described—that is to say, with the parts A and B connected together as shown." And in the second specification I find it again: "The arrangement of the parts A, B, valve D, case C, and the stuffing-box H, as herein described, for the purpose specified."

28 Q. Please examine "Exhibit Bailey's Reissue No. 6990

274 and state whether you find the case to which you have referred specified in the printed specifications; if so, state how.

(Same objection.)

A. I find it in the first claim and also in the third.

(Answer objected to as inadmissible and incompetent, because the witness assumes to testify upon the interpretation of the claims, which is matter of law for the court.)

29 Q. In the claim in "Exhibit Bailey's Original Patent," which you have quoted—that is to say, "A hydrant or water-plug constructed with the parts A and B connected together as shown"—the case C is not mentioned. How, then, do you find the same to be included in that claim?

(Objected to as immaterial, inadmissible, and incompetent.)

A. By reference to the specification, which mentions it there as "C is a loose casing around the hydrant tube."

30 Q. Please examine the said model "Exhibit Bailey's Original Model" and state how the parts A and B are connected together.

A. They are connected together by the frost-case C and stand-pipe A, which has a screw-thread at its base holding it firmly in position.

31 Q. State whether or not the specifications of said original patent, together with the drawings, would, in your opinion, enable a mechanic to construct a hydrant like the said "Bailey Original Model. And, if not, why not?

A. Yes; I think it could be so built.

32 Q. Then the discrepancy between the model and the drawing would not mislead, in your opinion?

(Objected to as leading.)

275 A. I think not; it might mislead some; it did not mislead me.

33 Q. State whether or not the specifications of said Bailey reissue, together with the drawings, would, in your opinion, enable a mechanic to construct a hydrant like the said "Bailey Original Model."

A. Yes; they would.

34 Q. Examine "Exhibit Defendants' Model," and compare the same with the "Exhibit Bailey Original Model," together with said reissued patent, and state what parts you find which are common to both.

A. The parts are alike, with the exception of the formation of the valve, and the frost-case is inserted into an enlargement cast in the base of the hydrant in "Exhibit Defendants' Model, while in the "Bailey's Original" the enlargement is on the frost-case extending over the base.

35 Q. In operating the hydrant what difference does it make, mechanically, whether you have the valve specified in the Bailey patents or the one shown in "Exhibit Defendants' Model?"

A. None.

36 Q. Why not?

A. The Bailey valve you raise to allow the water to flow through the nozzle, while in the other you depress the valve to produce the same effect.

37 Q. Then state whether or not they are mechanical equivalents.

(Objected to as leading and as inadmissible and incompetent, the term being one of law for the interpretation of the court.)

A. They are.

38 Q. What do you understand by the term "mechanical equivalent?"

276 A. Two articles operating entirely differently, but producing like effects, are mechanical equivalents.

39 Q. Please examine "Exhibit Bailey Partial Plan" and state when and where you first saw it and whether you examined it carefully.

A. At Flower Bros.' office. I first saw it some time after these letters were written—three or four months. I examined it carefully.

40 Q. State whether it was in the same condition then as it is now.

A. Yes, as far as I can see.

Cross-examination *de bene esse*, without waiving any objections taken:

41 C. Q. When you refer to your occupation at different times as locomotive engineer do you mean an engine-driver?

A. No; I referred [to] both occupations, sometimes running and sometimes master mechanic.

42 C. Q. In your present position, which you call that of chief engineer, you mean, I suppose, that you have principal charge of running a stationary engine; is it so?

A. Not by any means; I am mechanical superintendent.

43 C. Q. Superintendent of what?

A. Engines, boilers, machinery, and buildings for D. M. Ferry & Co.

44 C. Q. The wooden jacket of the old English hydrant of which you say "Exhibit Pendry Sketch" is a representation was large enough to constitute a man-hole, was it, of sufficient size to enable a man to go down into it and get at the valve which let on the water from the main?

277 A. In some instances; in others not.

45 C. Q. Did such wooden jacket have a cover; and, if so, did the hydrant stand-pipe come above it or not?

A. It had a cover which covered the whole apparatus when closed.

46 C. Q. When, speaking as a master mechanic, you say that two mechanical parts are connected together, what do you mean?

A. I mean they are placed together and held in their position by some mechanical device.

47 C. Q. By what mechanical device are the hydrant-stock and the base or elbow of "Exhibit Bailey's Original Model" held in their position relatively to each other?

A. A male thread is cut on the base of the stand-pipe and screwed into the female thread cut in the elbow of the base or in the brass bushing which is a part of the elbow.

48 C. Q. Have you read the specifications of "Exhibit Bailey Original Patent?"

A. Yes; many times.

49 C. Q. Do you find therein any mention whatever of any capacity of the loose casing C for end play, or any statement, hint, or suggestion that such loose casing is to have end play?

A. If the casing is properly loose it would naturally suggest itself to have end play, as well as play diametrically.

(Answer objected to as irresponsive.)

50 C. Q. Cross-interrogatory 49 repeated.

A. No; there is nothing further than what I have stated.

51 C. Q. Now, what do you mean by a casing properly loose diametrically.

278 A. Loose, so that it will move upon its standard, so that it can move as it would be moved by extraneous power, which could only be in the direction of its length; hence, my reason for thinking that the drawing did not correctly represent the model; and, further, I could find no other reason mechanically why the casing should be extended over the base.

(Answer objected to as irresponsive.)

52 C. Q. When you used the term "play diametrically," did you or not mean looseness of the casing, such as to enable it to move more or less laterally?

A. No; not in the common acceptation of the word.

53 C. Q. What did you mean by that term "play diametrically?"

A. So loose that, in a mechanical expression, it should not "grip," or "hold fast."

54 C. Q. Grip or hold fast to what?

A. The hydrant standard.

55 C. Q. Do you mean to say that if the casing of the hydrant described in "Exhibit Bailey Original Patent" is so constructed that it will not grip or hold fast to the hydrant standard it is a loose casing, properly so called, although it may not be moved more or less laterally or diametrically?

A. It wouldn't be a loose casing without moving endways.

(Answer objected to as irresponsive.)

56 C. Q. In your answer to cross-interrogatory 53 you said you meant by the term play diametrically "so loose that, in a mechanical expression it should not grip or "hold fast" to the hydrant standard. Now, I want to know whether you meant by that 279 testimony to state that a casing which did not grip or hold fast to the hydrant standard is "loose" in a proper mechanical sense? Please answer this.

A. Yes.

WM. A. PENDRY, *M. E.*

Recalled for further cross-examination.

57 C. Q. At the end of your signature you have placed the initials "M. E." Why did you do that?

A. To signify my profession.

58 C. Q. What profession?

A. Mechanical engineer.

59 C. Q. Did you ever attend any technical school where mechanical engineering was taught?

A. No, because I was educated in England, and in that country technical schools for the education of mechanical engineers, draughtsmen, and designers are generally considered by practical men as an absurdity. We study as mechanical engineers by being articled pupil for seven years, at a cost of about $1,500, paid down to some engineer of standing in his profession.

60 C. Q. You served your apprenticeship in a machine-shop, did you not?

A. I did not, wholly.

61 C. Q. Where else did you serve it?

A. Our time is divided by the engineer with whom we are serving our time between the machine-shop and the drawing office, so that we may be both practical as well as theoretical.

62 C. B. Did you ever study descriptive and perspective geometry?

A. Certainly.

63 C. Q. Where?

A. College at Gloucester, in England.

64 C. Q. Between what ages did you attend such college?

280. A. The ages of six and fourteen.

65 C. Q. At what age did you study perspective geometry?

A. All through my school course, and since.

66 C. Q. Did you ever study theoretical mechanics?

A. Yes.

67 C. Q. When and where?

A. All through my life; I am a student yet.

68 C. Q. Now, tell us what book or books on descriptive or perspective geometry you have ever studied, and what book or books on theoretical mechanics.

A. The name of the writer of the geometry we studied I have forgotten; it was the one used in our regular college course; various mechanical works—for instance, "Weisbach's Practical Mechanics," and various other works; Dr. Lardner's Series on the Steam-Engine, Fairbanks' Mechanics, Ewbanks on Hydraulics, and others.

69 C. Q. Now, do you think you are any better entitled to put "M. E." after your name than any other well-read master mechanic who has served an apprenticeship in a machine-shop, with ordinary work in the draughting-room?

A. Master mechanics do not work in the drawing-room, as a general thing.

(Objected to as irresponsive.)

70 C. Q. Cross-interrogatory 69 repeated.

A. No.

WM. A. PENDRY, *M. E.*

GEORGE BAILEY, a witness produced and sworn on behalf of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?
281 A. George Bailey; age, 54; residence, Toledo, Ohio; occupation, druggist.

2 Q. How long have you resided in Toledo?

A. 13 years in April. Before that I resided in Lockport for about 30 years. While in Lockport I was a machinist, and was one of the firm of T. R. Bailey's Sons, which was formed somewhere in the neighborhood of the fall of 1864 or spring of 1865, and was composed of myself and T. R. Bailey, Jr. It continued about five years, until about a year before I left there.

3 Q. Please examine "Exhibit Bailey's Original Patent," and state whether you ever saw it before.

A. Either that or one like it.

4 Q. Please examine "Exhibit Bailey's Original Model," and state whether you ever saw that identical model before; and, if so, where and when.

A. I think I have; in the city of Lockport, in the State of New York, in 1865.

5 Q. How many were made at that time?

A. There were two.

6 Q. What was done with the other one, if you know?

A. It was sent to Washington.

7 Q. For what purpose?

A. To get this patent—"Bailey's Original Patent."

8 Q. State whether you saw a hydrant of the construction like that model set up and in operation in the city of Lockport; and, if so, where was it and when.

(Objected to as leading.)

A. Yes; I saw one not quite one-half the size of an actual hydrant. It was put into Trevor's building, attached to the trunk that brought water to the wheel. It was somewhere in the neighborhood of 1865; I can't fix the date exactly.

9 Q. Why do you say in 1865?
282 A. Because it is the year that my brother and I went together. I used to talk to him once in awhile about fooling with it—fooling away money.

10 Q. State whether or not hydrants constructed like the said model were manufactured in the city of Lockport while you were there, and by whom, if they were so manufactured?

A. There were a few manufactured by T. R. Bailey's Sons.

Cross-examination:

11 C. Q. About how long after the one-half size hydrant you mention as put into Trevor's building and attached to the water-trunk was made and so connected was it that the few hydrants of full size were manufactured?

A. I think it was inside of a year.

12 C. Q. How near together in point of time was the construction of the half-size hydrant mentioned and the model here present—"Exhibit Bailey's Original Model?"

A. I don't know that I could tell, but I think it was inside of six or nine months.

13 C. Q. In stating the dates which you have given in relation to the construction of the one-half size hydrant and the model "Exhibit Bailey's Original Model," have you relied wholly upon unaided memory or have you consulted memoranda?

A. On memory alone.

14 C. Q. What is your recollection as to the order in which the one-half size hydrant and "Exhibit Bailey's Original Model" were constructed; which was made first, as you remember?

A. I think the model.

GEORGE BAILEY.

Adjourned at 5 p. m. to 10 a. m.

283 MARCH 11—10 a. m.

CHARLES J. SHIPLEY, a witness produced and sworn on behalf of the plaintiffs, testifies as follows:

1 Q. What is your name, age, residence, and occupation?

A. Charles J. Shipley; age, 52 years; residence, Detroit; occupation, draughtsman. I have resided in Detroit three years last September; before that in Toledo, from 1874, and previous to that in Chicago, since 1870; previous to that I resided in Cincinnati, where I was born.

2 Q. How long have you been a draughtsman?

A. I think it was in 1854 that I went with Mr. George H. Knight, at Cincinnati, to study draughting, and have been engaged in that occupation most of the time since.

3 Q. How long did you remain with Mr. Knight?

A. I think the first time between three and four years; I was with him afterwards on two occasions, about a year each.

4 Q. What were your business connections while in Chicago?

A. I was the greater portion of the time draughtsman for Gridley & Warner, patent solicitors and mechanical engineers. Warner was the mechanical engineer and Gridley the lawyer. For about a year I was with George B. Brown, a railroad contractor.

5 Q. What were your business connections at Toledo?

A. I was employed by the Toledo water-works as draughtsman, and afterwards by J. D. Cook, hydraulic engineer, and in my evenings there I had charge of a school of design.

6 Q. How as to the city of Detroit?

284 A. When I first came here I was draughtsman for Sprague, a patent solicitor, for about six months, then I opened an office for myself.

7 Q. How long were you with the Toledo water-works?

A. I think I was connected with them about five years.

8 Q. State whether or not you were familiar with the construction

and practical operation of hydrants used in the city of Toledo during your residence there; if yea, state what hydrants were used.

A. I was familiar with the construction of them and also their practical operation. There were quite a variety of hydrants used there. I don't remember all. The largest number were what is known as the "Mathews hydrant." There were some Boston hydrants there and a few Flower hydrants. There were a few of other makes put in as sample hydrants. During the latter portion of the time I was there all the hydrants bought and put in were Mathews hydrants.

9 Q. Please examine the four models now before you (being the exhibits heretofore offered in evidence in this case), and if you find among them the representation of any of the hydrants which were used in Toledo, please indicate them respectively.

A. The Flower hydrant was similar to this (referring to "Exhibit Flower Model"), except the auxiliary valve. The upper portion of it was the same as this. There were quite a number similar to this (referring to Exhibit Defendants' Model). I think there were some Mathews hydrants with bases made different from this. I think there were some where this loose case went into grooves. These others (referring to "Exhibit Old Bartholomew Hydrant"), I
285 never saw those at all, and I never saw any similar to this (referring to "Exhibit Bailey Original Model").

10 Q. Please examine "Exhibit Pendry Model," and state whether you ever saw a wooden casing like that in use with hydrants; and, if yea, where and when.

A. I saw similar cases in Cincinnati. It was about the time I first went with Mr. Knight, along about 1855 or 1856. Most of them there were tapering, but the sides were square, and they were covered at the top around the hydrant six or eight inches above the sidewalk.

11 Q. State whether or not you are familiar with the hydrants in use in the city of Chicago.

A. I can't say that I am familiar with them, only from seeing them on the street and seeing them when they were being put in.

12 Q. Describe the casings which you saw there.

(Objected to as immaterial and irrelevant.)

A. I saw metal cases similar to these. I have seen them where they were bricked like a well, and I saw them where they were boxed up, where the boxing would come up just below the outlet.

13 Q. Please examine the brown model, "Exhibit Bailey Original Model," and state how the stand-pipe or hydrant tube or stock is connected with the base, valve-chamber, or branch of the main.

A. The hydrant column is connected with the base, the upper portion is connected with a sleeve or case; the lower portion is connected with a screw and packing seats; that is the only connection there is.

14 Q. What are the essential or indispensable parts of hydrants of modern construction?

(Objected to as immaterial and indefinite.)

A. The connection with the main, the valve-chamber, the water-

column, the valves and seats, and the valve-rod, of course, and outlet for attaching hose.

286 15 Q. Please examine and compare them together, "Exhibit Bailey Original Model" and "Exhibit Defendants' Model" and designate the parts which you find common to both.

(Objected to as immaterial and incompetent.)

A. They both have connection with the main, valve-chamber, and valves, stand-pipe or water column, and the outlet and the sleeve or jacket, or case. I believe that is all.

16 Q. How as to the valve-rod or stuffing-box at the top?

(Same objections.)

A. There is provision in both of them for packing. They are not packed in the same way, but both accomplish the purpose of retaining the water.

17 Q. What is a hydrant?

A. A hydrant is an article of manufacture, and is similar to and amounts to a large valve.

18 Q. Please examine "Exhibit Bailey Original Patent" in connection with "Exhibit Bailey's Original Model," having reference particularly to the drawing, and state whether or not you discover any difference—a discrepancy between the drawing and the model; if yea, designate the same.

(Objected to as inadmissible and incompetent.)

A. There is a difference there in showing that the case is fast at both ends. The drawing shows it seats itself at both ends, allowing for no play. That is all the difference I see; while the model shows a space for play—raising and lowering the case.

19 Q. State when and where you first saw a hydrant provided with a case of that construction.

287 A. I can't tell exactly when I first saw one. The first place I became familiar with hydrants was in Toledo; that was the first hydraulic drafting I did. I saw them there.

20 Q. Of whose make?

A. There was the Mathews hydrant, made by Wood & Co., and the Flower hydrant, and one kind made by the Boston Machine Co. There may have been others there, but that is all I remember.

21 Q. If, as a matter of fact, the draughtsman who made the drawings for Bailey's original patent, No. 75334, had before him "Exhibit Bailey's Original Model" while he was making the said drawing, how, in your opinion, would such a difference as that which you have stated exist between the said drawing and said model have occurred?

(Objected to as inadmissible and incompetent.)

A. I can readily see how a draughtsman who was careless or hurried could make the mistake. In making Patent-Office drawings no measurements are taken of the different parts, only enough to give general proportion to the whole. The draughtsman would

most likely place the model on his table upon its side and sketch it with his eye. He would get the proportions with his eye; he wouldn't measure it. The base being so much thicker than the top the case would slide down against the bead of its own weight. While in that position he would get the general outline, and would represent the case as being in contact with the bead. The base of the case being outside of or covering the seat would show nothing but the straight pipe below it; then, upon taking it apart to show the internal arrangements, would run the lower pipe or seat up until it reached the seat on the case, showing it tight above and below.

(Same objections to the answer.)

288 22 Q. Please examine "Exhibit Bailey Reissue," and compare the same with "Exhibit Bailey Original Patent," and state wherein they differ.

A. There is no essential difference in the two except a space is left between the bead and case in the reissue, as shown in the model "Bailey's Original Model."

(So much of the answers as refers to "Exhibit Bailey's Original Model" is objected to as inadmissible and incompetent.)

CHARLES J. SHIPLEY.

Cross-examination declined.

By Mr. HILL: This closes the examination under the notice heretofore given.

Testimony taken by and before John T. Joyce, special examiner, at the city of Lockport, April 7, 1884, under rule 67, in equity, as amended.

Present: Edward J. Hill, Esq., of counsel for plaintiffs; Geo. L. Roberts, Esq., of counsel for defendants.

CHARLES H. SQUIRES, a witness produced and sworn on the part of the plaintiff, testified as follows:

1 Q. What is your name, residence, and occupation?

A. Charles H. Squires; age, 40 years; Lockport, N. Y.; occupation, city clerk of city of Lockport, and, as such, keeper of the records of the city.

2 Q. What book have you with you?

A. Book of city record No. 2, beginning April 11, 1867, and ends August 30, 1869. It is the record of the proceedings of the common council.

289 3 Q. At page 152 state whether you find a resolution relative to T. R. Bailey's Sons' hydrant.

A. I do.

4 Q. Please give the date and read the resolution as part of your answer.

A. Page 152, November 11, 1867: "On motion of Alderman Moody, permission was granted to the Holly Manufacturing Co. and to T. R. Bailey's Sons, to each to put in one of their new patent hydrants on the line of the Buffalo and Transit street water-pipe ex-

tension, on the condition that if said hydrants prove unsatisfactory they shall be removed and one of the usual pattern substituted and in place of each, without cost to the city."

5 Q. At page 585 do you find John McCue's name? Please read the proceedings, giving the date as to the appointment of John McCue.

A. July 12, 1869, I find the following: The committee on finance reported as follows, among other things: "That they would recommend that John McCue be appointed inspector to superintend the laying of water-pipes in East avenue and Washburn street, with a compensation not to exceed $2.50 per day for time actually employed."

6 Q. Look at page 561. State whether you find a proposal from James Fleming; if yea, give the date and read the same as part of your evidence.

A. I do. Under date of July 6, 1869, page 561, I find a proposal from James Fleming as follows: "For extension of water-pipe on East avenue and Washburn street, viz: I propose to do the whole work, according to the specifications therefor, for the sum of $2,900.00. Signed, James Fleming." And also the following: "The proposal of James Fleming being the lowest, the mayor and city clerk
290 were directed to enter into contract with him upon his giving the bond required by the city charter for the faithful performance of the work." Same date.

7 Q. State whether the recommendation of the committee for the appointment of Mr. McCue inspector was approved; and, if so, when.

A. The recommendation was referred to the mayor. That is all I can say about it.

8 Q. At page 112, under date of September 2, 1867, what report relative to water-pipe extension, do you find as to James Clapham or T. R. Bailey's Sons?

A. I find the following: "The clerk reported several bids for the Buffalo and Transit street water-pipe extension; said bids were opened, and were as follows: One from James Clapham, for the Robins joint pipe, at $2,155.80; for common pipe, $2,005.00." And also find another as follows: "One from T. R. Bailey's Sons, for common pipe and their own patented hydrants, $2,030.00." These bids were referred to committee on fire and water.

9 Q. Please state what, if any-[thing], there was done in reference to Clapham's bid?

A. On page 119, September 16, 1867, I find the following: "On motion of Alderman Peterson, the mayor and clerk were directed to contract with James Clapham for the laying of the Buffalo and Transit street water-pipes, stipulating that all pipe shall be tested to bear pressure of two hundred and fifty pounds per square inch, and the labor and material to agree in all respects with the ordinance and specifications therefor, and the work to be completed by the first day of November next."

10 Q. Please state whether you have in your possession, as

291 city clerk, the contracts referred to, respectively, with James Fleming and James Clapham; if yea, please produce them.

A. I think not. I think they were destroyed by fire, January 5, 1881, at the burning of the opera house building.

Cross-examination by Mr. ROBERTS:

11 C. Q. Were you city clerk at the time the records from which you have read were made by order, or did you make such records, or any part of them, or have you any personal knowledge of the matters so recorded?

A. I was not then city clerk. I did not write the records; W. H. Ransom wrote them, who was the city clerk. I remember personally both contracts, as I was alderman at the time.

CHARLES H. SQUIRES.

JAMES CLAPHAM, a witness produced and sworn on behalf of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. James Clapham; 69 years of age; residence, Genesee street, Lockport; occupation plumber and gas-fitter.

2 Q. How long have you resided in Lockport?

A. Twenty-eight years.

3 Q. You heard the testimony of Mr. Squires this morning?

A. Yes, sir.

4 Q. Are you the James Clapman who made a bid for putting in the Buffalo and Transit street water-pipe extension in August or September, 1867?

A. Yes, sir.

292 5 Q. Please look at the brown model, "Exhibit Bailey Original Model," and state whether you ever saw it before; and, if so, where and when.

A. I think I have; I have seen one very much like it, any way, in Bailey & Vail's shop, here in Lockport.

6 Q. About when was that?

A. About the year 1867—about the same time I made that contract with the city.

7 Q. State whether or not you ever saw any full-size hydrants constructed like the said model. If so, where and when, and by whom were they made?

A. I put one in, the same model, the same pattern, on Transit street, in Lockport, pretty near Mr. Ransom's house, on the same side of the street. That was when I had the contract, in 1867; that was made by Thomas R. Bailey; he was the man I contracted with for it.

8 Q. State whether or not the city accepted that hydrant on your said contract.

A. They did.

9 Q. State whether or not you ever saw that hydrant in operation after it was put in.

A. I have once, about ten years ago; Mr. Levi's house was on fire;

it was burned down; it was a Sunday night, and when I got there they had got the hose on and they couldn't get any water in the hydrant; then they came to me to know what was the matter with it, and I told them if they would go and turn it the other way they would get water; they did so and got all they wanted.

10 Q. Is that hydrant there now?

A. No.

11 Q. Do you know what has become of it?

A. I do not.

293 12 Q. Have you seen any other hydrants of this construction?

A. Never but one, not a full-size one, not set; I have seen several piled in a lump; they were brought for Mr. Fleming, on Charles street.

13 Q. Where was this one?

A. On Market street.

14 Q. Whereabouts on Market street?

A. Near building where Niagara Manufacturing Company used to be.

15 Q. When did you last see this one on Market street?

A. Just before dinner, to-day.

16 Q. Do you know how long that one has been there?

A. I do not.

17 Q. State whether or not you remember of seeing a small-sized hydrant of the same construction; and, if so, where and when.

(Objected to as leading.)

A. Yes; have seen one, about the same time I had that contract, in the basement of Mr. Trevor's building, in Lockport.

18 Q. How happened you to see that?

A. I was solicited to look at it by Mr. Bailey.

19 Q. State whether ar not you ever saw the patterns for full-size hydrants. If so, where and when did you see them?

A. I don't think I ever saw the whole of them; I saw part of them; I can't tell what part, it is so long ago.

20 Q. About when did you see them?

A. It was when the contract was going on, in 1867.

21 Q. Where did you see them?

A. In Thomas R. Bailey's room, at his shop in Lockport.

294 22 Q. State whether or not you know one James Fleming. If so, where does he reside; what is his business?

A. I know him; he resides in Lockport, and is a stone-cutter.

23 Q. State whether you remember his having a contract for putting in water-pipe and hydrants in the city of Lockport.

A. Yes.

24 Q. Is he the man you refer to in your testimony when you say certain hydrants were brought for him?

A. He is the man, sir.

Cross-examination by Mr. ROBERTS:

25 C. Q. Where was Thomas R. Bailey's shop at the time you put in the Bailey hydrant on Transit street, as mentioned?

A. In Trevor's place.

26 C. Q. Was it in Trevor's stone building, or in the wooden building by the side of the stone building on Trevor's land?

A. I can't tell. I did not know one part of the building was stone and the other wood. I thought it was all stone.

27 C. Q. Don't you remember that there was a wooden building on Trevor's land, between the Trevor stone building and the stone building formerly occupied by the Niagara Manufacturing Company, and that such wooden building was at one time occupied by T. R. Bailey, or the concern in which he was partner, and that this wooden building was afterwards burned down?

295 A. Yes; you refresh my memory about that. It was a blacksmith shop. The blacksmith was a Frenchman. I have forgotten his name.

28 C. Q. Do you not remember that T. R. Bailey or his firm occupied that wooden building when it was first built and for some time afterwards?

A. I do not remember that. I always thought the Frenchman had it.

29 C. Q. You say you saw a small-sized hydrant in the basement of Mr. Trevor's building about the same time you had the contract with the city, of which you have spoken. Where in that basement did you see such small-sized hydrant at that time, and how was it rigged?

A. Well, it was in the basement, and I think it sat on a square block of wood—I think so, but am not sure of that now—and set on top of the flume. I never saw it work. It was Sunday when I saw it, and there was no water in the pipe.

30 C. Q. Was it connected with the flume so that water could be let on through it if there had been water in the flume?

A. I cannot tell you. I did not see it work. I presume it was. I don't know.

31 C. Q. How much of it did you see?

A. I saw the whole of it. There was nothing out of sight.

32 C. Q. The valve was out of sight, was it not?

A. The valve was out of sight just as this is out of sight now (referring to "Exhibit Bailey's Original Model").

33 C. Q. Well, just what did you see of that small-sized hydrant?

A. Just what I see of this model now. I couldn't see into it, and didn't see it work (referring to "Exhibit Bailey's Original Model").

296 34 C. Q. Did you have anything to do with getting the permission of the city government to set one of Bailey's hydrants in Transit street?

A. No, sir; not that I remember.

35 C. Q. You set it in considerable hurry, did you not?

A. Just as quick as I could.

36 C. Q. Why were you in such hurry?

A. We were afraid of trouble, and if we could get it in it would be there. I had a permit to do it.

37 C. Q. When you say, "We were afraid of trouble," to whom do you refer as "we?"

A. Both myself and Bailey.

38 C. Q. What trouble were you afraid of?

A. We were afraid of Race & Mathews coming and putting an injunction on us.

39 C. Q. Why were you afraid of Race & Mathews putting an injunction on you?

A. They had threatened to do so to Bailey, and he communicated it to me.

40 C. Q. What was there about that hydrant that you and Bailey were afraid of Race & Mathews putting an injunction against?

A. Because we had an idea we had a good deal better one than they had.

(Answer objected to as irresponsive.)

41 C. Q. Please hear cross-interrogatory 40 read again and answer it responsively.

A. They had threatened him, I suppose.

42 C. Q. But what was it you feared Race & Mathews would complain of?

A. Nothing that I feared. I wanted to get Bailey's hydrant in.

297 43 C. Q. You have said, have you not, that you and Bailey were afraid of Race & Mathews coming and putting an injunction upon you?

A. I never was afraid.

(Answer objected to as irresponsive.)

44 C. Q. Cross-interrogatory 43 repeated.

A. I never said so, that I know of.

45 C. Q. What was there about that hydrant which you set in such a hurry which you and Bailey thought would be complained of by Race & Mathews?

A. There wasn't anything, that I know.

46 C. Q. You have testified that you had an idea that you had a good deal better hydrant than Race & Mathews had. In what respect did you think that Bailey's hydrant was better?

A. It had a great deal better valve in. The valve was my object at that time in getting a good one.

47 C. Q. Did you think that Race & Mathews could complain of the valve in that hydrant?

A. No; I was sure they couldn't.

48 C. Q. What did you think which made you set that hydrant in such a hurry?

A. I didn't want any trouble with them. I knew if we got it in there it would be there and it would work.

49 C. Q. You didn't want any trouble with them about what, do you mean?

A. I didn't want them to make me pull it out again after we got it in.

50 C. Q. What I want to know is what you thought there was in the construction of that hydrant about which you feared that Race & Mathews might cause trouble. Will you answer me this?

A. I can give you my own version of it. They saw we had a better valve than they had, and they wanted to have it out of the way. That's my opinion of it.

298 51 C. Q. But you have testified, have you not, that you were sure Race & Mathews could not complain of the valve in that hydrant?

A. There was no ground for it.

52 C. Q. Have you not so testified?

A. I have always said it was the best valve.

53 C. Q. Have you not testified in this examination that you were sure Race & Mathews could not complain of the valve in that hydrant?

A. If I have I have testified just as I thought.

54 C. Q. Do you know whether you have so testified or not?

A. I believe I have.

55 C. Q. Well, then, if you were sure Race & Mathews could not complain of the valve in that hydrant what did you fear they could or would complain of in that hydrant?

A. I feared they would make me take it out and give me nothing for it after getting a permit to put it in.

56 C. Q. For what reason did you fear they would make you take it out? What was there about it which made you think they had the right to complain against you?

A. They knew it was something better than they had got, that was one thing, and they wished it out of the way and one of their own in its place.

57 C. Q. Did you think that Race & Mathews could compel you to take up that hydrant because it had a better valve in it than you thought theirs was?

By Mr. HILL: (Objected to as calling for an opinion of the witness, and therefore incompetent.)

A. They did so by Mr. Fleming.

58 C. Q. Cross-interrogatory 57 repeated.

(Objection repeated.)

299 A. I was afraid so.

59 C. Q. Now, is it not a fact that you and Thomas R. Bailey talked over the matter of Race & Mathews' claim to a loose case for a hydrant, and were afraid that they would put an injunction upon you because Bailey's hydrant, which you put down in such hurry, had a loose case upon it?

A. I don't know that I paid much attention to the loose case, and I don't know that Bailey and I had a great deal of conversation about those cases.

60 C. Q. Didn't you have some conversation at that time about a loose case on the hydrant?

A. Well, if I had I have forgotten it.

61 C. Q. You do not remember, then, do you, that Thomas R. Bailey ever mentioned to you [the subject of a loose case for a hydrant up to the time that you had got his hydrant set in the ground on Transit street?

A. He mentioned it when I was looking at this thing (referring to "Exhibit Bailey Original Model"). I did not know what it was for, and he explained it.

62 C. Q. Previous to the time you put down Bailey's hydrant on Transit street had you purchased hydrants of the concern with which Samuel R. C. Mathews was connected in business in Lockport?

A. I never bought any of them before, but I put down scores of them.

63 C. Q. Had you not during the year 1867, and before you put down Bailey's hydrant in Transit street, received from the concern with which Mr. Mathews was connected in business a hydrant like the brass model "Exhibit Defendants' Model," and put the same down in a public street in Lockport?

A. I had not.

64 C. Q. How positive are you of that?

300 A. I don't remember it; don't remember seeing anything like it now—the thing itself. There was a time when one blew out down here by the bank, and it landed in the sidewalk on the curbstone and broke in two right here (indicating on model), and they made a new one, with a brass seat in the knob in the valve-box, and put that in, and it was the first one I had seen with this brass seat in.

65 C. Q. Was it October, 1867, that you put this hydrant in?

A. I can't tell, exactly; it was somewhere about there; it was not so far along in the year as October.

66 C. Q. Didn't that hydrant have a loose sliding case like that represented in the brass model "Exhibit Defendants' Model?"

A. It had a loose case. It did not work up and down like this (referring to said model).

67 C. Q. Did you not put down in the public streets of the city of Lockport, during the year 1868, several hydrants constructed with loose sliding cases like "Exhibit Defendants' Model," and obtained from the concern with which Mr. Samuel R. C. Mathews was connected in business?

A. No, sir; I put the hydrants in, but I did not obtain them from Mr. Mathews or the firm.

68 C. Q. And did you not also put in a hydrant just like those, some time in the year 1867, which came from the manufacture of Mr. Mathews' concern?

A. I put none in, except what I put in on Buffalo and Transit streets; I don't remember that I did.

69 C. Q. Have you any memorandum or book entry of any kind made at the time relating to the hydrant which you put down in the city of Lockport in the year 1867 or the year 1868?

301 A. No; only this one, I tell you; I always worked for somebody else.

70 C. Q. Do you refer, in your last preceding answer, to the records of the city government produced by Mr. Charles H. Squires to-day?

A. That was on my own hook; I haven't any memorandum at all; I did have some, but they are burned up.

Redirect by Mr. HILL:

71 Q. Of whom did you purchase the hydrants to fill the contract which you made with the city of Lockport in 1867 for Buffalo and Transit streets?

A. With the exception of one from Bailey and one from Holly, I got them from Race & Mathews.

72 Q. Had you a contract with Race & Mathews for hydrants for the entire contract aforesaid?

A. I had in the first place; I agreed with them for seven hydrants and they furnished them, and the city paid for them, I believe.

73 Q. What explanation did Mr. Bailey give you in regard to the frost-case on his hydrant?

A. That's so long ago that I can't tell you; I don't know what he talked about.

JAMES CLAPHAM.

APRIL 8, 1884.

JAMES CLAPHAM recalled.

By Mr. HILL:

74 Q. The hydrant which you put in of the Bailey patent on Transit street you say is not there now. Has any other hydrant been put in its place? If so, of what construction is it and by whom made?

302 A. The hydrant is not there now. The make of the one that is in now is Holly's, Holly Manufacturing Company. I don't know when that was put in.

Cross-examination by Mr. ROBERTS:

75 C. Q. How lately have you seen the hydrant which is set on the corner of Buffalo and Transit streets?

A. Three weeks ago, maybe.

76 C. Q. Did you set that hydrant?

A. No, sir. I set it once, when I did the job, but it was on the other side of the road.

77 C. Q. Of whose make is that hydrant?

A. Race & Mathews'.

78 C. Q. It is like the brass model, "Exhibit Defendants' Model," is it not?

A. If it is the one I put in it has not a valve like this (referring to the model).

79 C. Q. What was the difference in the valves?

A. It was not like this at all. The Race & Mathews valve was pretty much all leather—the old ones that I have had to deal with were.

80 C. Q. But the Race & Mathews hydrant which you set on the

opposite corner of Buffalo and Transit streets from the corner on which it is now set had a sliding case like the brass model "Exhibit Defendants' Model," did it not?

(Objected to as leading and not proper subject of cross-examination.)

A. It had an outside case on.

81 C. Q. How much end play did that case have?

A. I never measured it, and I can't tell whether it had any or not.

303 82 C. Q. Hasn't the Race & Mathews hydrant now on the corner of Buffalo and Transit streets an outside case with end play of several inches.

A. I never saw it, unless it is the same one that was first set on the other corner.

83 C. Q. Didn't you see that hydrant three weeks ago or so?

A. Yes; I saw it as any other hydrant on the street; I saw part of it that is above ground.

84 C. Q. And didn't you see above ground the top of an outside case and several inches for play between that and the bead on the hydrant-stock?

A. I wouldn't swear to an outside case of three or four inches play.

85 C. Q. How was the trench dug for laying the water-pipe extension in Buffalo and Transit streets when you did it under contract—that is to say, where did you begin to dig the trench and where did you leave off?

A. I commenced this end, this side of the big bridge—four feet deep, a little over two thousand yards long; I forget now—and ended up at Bailey's hydrant. That was the last of it.

86 C. Q. You dug the trench from the big bridge along Buffalo street to Transit street and then up Transit street towards High street, did you not?

A. Yes, sir.

87 C. Q. Where did you begin to set the hydrants?

A. The first hydrant was within six feet of this end.

88 C. Q. You mean, do you, that the first hydrant was set on Buffalo street, near the big bridge?

A. Yes.

89 C. Q. How many hydrants did you set on Buffalo street before getting to Transit street?

A. Four.

304 90 C. Q. Of whose make were they?

A. Race & Mathews.

91 C. Q. They were set before the hydrants on Transit street were set, were they not?

A. Yes.

92 C. Q. How many Race & Mathews hydrants did you set on Transit street?

A. One.

93 C. Q. Do you mean the one on the corner of Buffalo and Transit streets?

A. No, sir; it was above Buffalo street, on Transit street.

94 C. Q. And Bailey's hydrant was the last hydrant you set at that time, was it?

A. Yes; on that string of pipe. Nothing has been added to that pipe in length since.

95 C. Q. Did Thomas R. Bailey go with you when you set this hydrant on Transit street, or was he present while it was being set?

A. I believe not.

96 C. Q. Do you remember whether he was present at any time while you were doing that job on the Buffalo and Transit street water-pipe extension?

A. Many a time.

97 C. Q. And he saw the Race & Mathews hydrants which you were putting in there, did he?

A. Yes, sir.

JAMES CLAPHAM.

JAMES FLEMING, a witness produced and sworn on the part of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. James Fleming; 58 years of age; residence, Lockport; occupation, contractor.

305 2 Q. How long have you resided in Lockport?

A. Thirty years.

3 Q. State whether or not you had a contract with the city of Lockport for the water-pipe extension hydrants in East avenue and Washburn street. If yea, when and how do you fix the time?

A. I had in 1869; I recollect the time well; I have a date for it.

4 Q. Please examine "Exhibit Bailey's Original Model," and state whether you ever saw any full-sized hydrants constructed of that pattern.

A. I think I have seen them; I am not certain. When I had the contract in 1869 I let the laying of the pipe, the running of the joints, and setting of the hydrants by contract; therefore, I didn't pay much heed to the shape of the hydrants; I didn't examine them close enough to be certain.

5 Q. Of whom did you buy the hydrants for that job?

A. Of Race & Mathews. I ordered them of Thomas R. Bailey first.

6 Q. Did Thomas R. Bailey deliver any hydrants to you for that job; and, if so, how many, and where did he deliver them?

A. I can't tell how many he delivered, but he delivered them on East avenue and Washburn street; I think there were five or over.

7 Q. State whether you set any of those hydrants or not; if so, how many.

A. I set one, and Race & Mathews served me with a notice of injunction. This is the notice of injunction. This is the notice referred to. (Witness produces paper.)

By Mr. HILL: We offer the paper produced by the witness in evidence, being a letter dated Lockport, N. Y., August 16, 1869,

306 James Fleming from Washburn Race and S. R. C. Mathews, marked "Race & Mathews-Fleming Letter," J. T. J., special examiner.

8 Q. What happened as to these Bailey hydrants on the receipt of this letter or notice?

A. I went to Bailey at the time and showed him this notice and had counsel; counsel told me, if Bailey gave bail to stand any litigation, that I might put them in; so he didn't give bail, and I got my hydrants from Race & Mathews and took out the Bailey hydrant I had already set.

9 Q. What became of the Bailey hydrants which he delivered?

A. He came to me and wanted me to lay them back. He was to deliver them on the ground. I told him I would have nothing to do with them; that he should take them back himself; so he took them back.

10 Q. Have you since then seen or do you know of a hydrant constructed like the ones he delivered to you? If yea, where is the same now?

A. I have seen one on Market street, in front of Mathews' old place. It is set in the ground there.

11 Q. When did you first see that?

A. First I saw it, to take notice of it, about three weeks ago. I measured it from the top of the frost-case to the bead; the distance was one and one-half inches. It was marked on top "T. R. Bailey. Pat'd Mar. 10, 1868, Lockport.

12 Q. What was the condition in which you found it?

A. The dirt came up to about half way between the bead and the nozzle. The ground was frozen at the time, and we dug it away with a pick and a spade to get at the top of the frost-case, and made the measurements.

13 Q. How does the top of that hydrant differ in form from the model, "Exhibit Bailey Original model," now before you?

307 A. I don't think it differs any, except that it has two nozzles.

14 Q. What counsel did you have as to the Bailey hydrant?

A. George Green, who was city attorney then.

Cross-examination by Mr. ROBERTS:

15 C. Q. How long did the Bailey hydrants lay on the ground where they were delivered on East avenue and Washburn street before Mr. Bailey had them taken away?

A. I couldn't tell. I think he did not take them right away; might have lain there some time.

16 C. Q. How did the Race & Mathews hydrants which you set on the East avenue and Washburn extension mentioned compare with the brass model "Exhibit Defendants' Model?"

A. I think they are the same.

17 C. Q. Are those Race & Mathews hydrants still there in the ground on East avenue and Washburn street where you first set them?

A. No, sir; it was above Buffalo street, on Transit street.

94 C. Q. And Bailey's hydrant was the last hydrant you set at that time, was it?

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A. I couldn't tell. I think he did not take them right away; might have lain there some time.

16 C. Q. How did the Race & Mathews hydrants which you set on the East avenue and Washburn extension mentioned compare with the brass model "Exhibit Defendants' Model?"

A. I think they are the same.

17 C. Q. Are those Race & Mathews hydrants still there in the ground on East avenue and Washburn street where you first set them?

A. I think not all. I think they have the Holly hydrants in place. I did not examine. I couldn't tell exactly.

18 C. Q. You have not lately been out there to see whether those Race & Mathews hydrants are still in place, have you?

A. Not on East avenue. I have been on Washburn.

19 C. Q. Is there not one of those Race & Mathews hydrants on the corner of East avenue and Washburn street, and three more on Washburn street between East avenue and the N. Y. C. railroad depot?

A. I think there is.

308 20 C. Q. And are these the same hydrants which you set there in 1869?

A. I couldn't tell whether they are the same hydrants; they are the same make.

21 C. Q. Do you remember how many Race & Mathews hydrants you set in 1869 on that East avenue and Washburn street water-pipe extension?

A. I couldn't tell; five or more; can't tell exactly the number.

Redirect examination by Mr. HILL:

22 Q. You made a contract with Bailey for all the hydrants for that job in the first place, did you not?

(Objected to as leading.)

A. I did.

JAMES FLEMING.

"EXHIBIT RACE & MATHEWS-FLEMING LETTER."

C. J. Lloyd, president; S. R. C. Mathews, sec. and treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *Aug.* 16, 1869.

James Fleming, Esq., Lockport, N. Y.

DEAR SIR: Having learned that you had ordered some fire-hydrants of Messrs. Bailey Bros. for use in this city, we wish to notify you that the hydrant proposed to be manufactured by them is an infringement upon the patent granted to us January 28, 1858, and that we intend to prosecute all such infringements to the fullest extent of the law, and will commence proceedings at once against any party or parties making or using a hydrant with a detached case, and also have an injunction upon such parties, restrain-

309 ing them from such use. We, of course, presume you did know in regard to the infringement, and wish to save you unnecessary delay and expense in filling your contract with the city.

Respectfully yours,

WASHBURN RACE,
Per MATHEWS.
S. R. C. MATHEWS.

JOHN A. MERRITT, a witness produced on the part of the plaintiffs, being sworn, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. John A. Merritt; age, 32 years; residence, Lockport, N. Y.; occupation, county clerk of Niagara county.

2 Q. As such county clerk, you have custody of certificates of incorporation of joint-stock companies.

A. I do.

3 Q. If you have the certificate of incorporation of the Niagara Manufacturing Company, please produce it.

A. I have it. It belongs on the files in my office. (Paper produced by witness.)

4 Q. Have you made a copy of that original and compared it with the original?

A. I have, and it is a true and correct copy of the whole of the original.

By Mr. HILL: We offer the copy referred to by witness in evidence, marked "Exhibit Certificate of Incorporation of Niagara Manufacturing Company," J. T. J., special examiner.

5 Q. What book have you there?

A. I have one of the judgment dockets kept in my office.

6 Q. What does it contain?

310 A. It contains the docket of all judgments against persons and corporations whose names commence with N or O, from 1865 to 1883, inclusive.

7 Q. Please examine said docket and state whether or not you find any unsatisfied judgments against the Niagara Manufacturing Company aforesaid; if yea, please give the names of the parties, respectively, in whose favor such judgments have been obtained, the courts where obtained, the amount of the recovery, damages, and costs; when perfected and when docketed.

(Objected to as irrelevant and immaterial.)

A. First judgment against the company is in favor of Helen M. Lloyd, obtained in the supreme court, Niagara county; recovery, $13,662.53; costs, $17.21; total, $13,679.74; perfected August 21, 1868; docketed same day, at 8 o'clock a. m. The next against same company, in favor of First National Bank of Lockport, obtained in supreme court, Niagara county; recovery, $9,194.73; costs, $20.99; total, $9,215.72; perfected May 7, 1869; docketed same day, at 2 o'clock p. m. Next judgment against same company, in favor of same party, obtained in supreme court, Niagara county; recovery, $6,122.84; costs, $22.99; total, $6,145.33; perfected May 7, 1869; docketed same day, at 2 o'clock p. m. Fourth judgment, against same company, in favor of William H. Newman, — supreme court, Erie county; recovery, $452.65; costs, $21.32; total, $473.97; perfected June 24, 1869; docketed June 25, 1869, at 9 o'clock a. m. Fifth judgment, against same company, in favor of Joseph Oestrich and Louis Greenbaum, obtained in justice's court, Niagara county;

recovery, $78.60; costs, $2.65; total, $81.25; perfected November 5, 1869; docketed December 31, 1869, at 6 o'clock p. m. Sixth judgment, against same company, Helen M. Lloyd, and Cromwell
311 J. Lloyd, in favor of Hiram Dewing and Susan M. Dewing, as administrators of Leonard C. Dewing, deceased; obtained in supreme court, Niagara county; deficiency, $7,797.72; perfected October 1, 1869; docketed same day.

8 Q. How long are judgment liens against judgment debtors, according to the laws of the State of New York?

(Same objection as last above.)

A. Twenty years from the date of recovery.

9 Q. These judgments are all unsatisfied, are they not, according to the docket?

(Same objection.)

A. Yes, sir.

JOHN A. MERRITT.

"*Exhibit Certificate of Incorporation of Niagara Manufacturing Company.*"

This is to certify that we, the subscribers, residing at Lockport, in the county of Niagara, and State of New York, have formed and do hereby form ourselves into a body corporate, under and by virtue of the act entitled "An act to authorize the formation of corporations for manufacturing, mining, mechanical, or chemical purposes," passed February 17, 1848, by the corporate name of the "Niagara Manufacturing Company."

The said company is formed for the purpose of manufacturing pumps, fire-hydrants, skates, and such other articles made of metal or wood, or of both, as said company may deem expedient.

The capital stock of said company shall be fifty thousand
312 dollars, with the right to increase the same from time to time to any larger sum, not exceeding two hundred thousand dollars, in such manner and on such terms as the trustees of said company shall deem advisable. Said stock shall be divided into shares of one hundred dollars each.

The stock, property, and business of said company shall be managed by five trustees; the following persons shall be the trustees of said company for the first year, viz., Washburn Race, S. R. C. Mathews, William P. Daniels, Willard J. Daniels, and Cromwell J. Lloyd

The business of said company shall be carried on in the village of Lockport, county of Niagara, and State aforesaid.

The said company shall continue in existence for the term of fifty years.

The officers of said company shall be a president, secretary, and treasurer, to be elected by the trustees, and such other officers, agents, and employees may be chosen from time to time as they may consider necessary and proper for the correct management of the busi-

ness and concerns of the company. An election of trustees shall be held annually, at such time and place as shall be directed by the by-laws of the company.

Lockport, N. Y., Oct. 10th, 1864.

[$.05 rev. stamp, cancelled.]

WASHBURN RACE,	50 shares.	[L. S.]
SAM'L R. C. MATHEWS,	50 shares.	[L. S.]
CROMWELL J. LLOYD,	10 shares.	[L. S.]
W. J. DANIELS,	50 shares.	[L. S.]
WM. P. DANIELS,	340 shares.	[L. S.]

313 NIAGARA COUNTY, *ss:*

On this tenth (10th) day of October, 1864, personally appeared before me Washburn Race, Samuel R. C. Mathews, William P. Daniels, and Willard J. Daniels, to me personally known to be the persons who executed the above certificate, and they acknowledge that they executed it for the purposes mentioned therein; and the said William P. Daniels testifies that the name of Cromwell J. Lloyd, one of the signers of the above certificate, was signed by permission of said Lloyd.

ORIGEN STORRS,
Notary Public.

Filed October 11th, 1864.

H. A. COOK,
Deputy Clerk.

STATE OF NEW YORK, }
Niagara County, } *ss:*

CLERK'S OFFICE.

I hereby certify that I have compared the annexed copy of certificate with an original on file in this office, and find the same to be a correct transcript thereof and of the whole of said original.

In witness whereof I have hereunto set my hand [and] affixed the seal of said county, at Lockport, this 8th day of April, 1884.

[SEAL.] JOHN A. MERRITT, *Clerk.*

APRIL 10, 1884.

JOHN MCCUE, a witness produced and sworn on behalf of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. John McCue; 52 years; Lockport, N. Y.; occupation, plumbing, gas and steam fitting. I have lived in Lockport since 1846.

2 Q. State whether or not you knew one Washburn Race.

314 A. I did.

3 Q. Where did he reside?

A. He resided in Lockport when I knew him. He must have been here several years. I worked for the Holly Manufacturing Company. Race & Mathews occupied part of the same building with the Holly Company when Race & Mathews first came to Lock-

port. They came here about the time of breaking out of the war, or a little before.

4 Q. Were you acquainted with S. R. C. Mathews?

A. I was.

5 Q. How long did Race & Mathews continue to do business here?

A. I can't answer; they were here several years.

6 Q. Do you know what year they left here?

A. I can't tell.

7 Q. State whether you knew a concern here called the Niagara Manufacturing Company.

A. I did.

8 Q. Race & Mathews were connected with that company?

A. Yes, sir.

9 Q. What became of that company?

A. That I can't answer, except that they gave up business. Whether they failed or just gave up business I don't know. I presume I knew at the time.

10 Q. Do you know when Race left Lockport?

A. No; nor when Mr. Mathews left.

11 Q. Do you know where Mr. Race is now?

A. I understand he is dead.

12 Q. Do you know where he went when he left here?

A. I couldn't say now.

13 Q. How long after the Niagara Manufacturing Company gave up business did Race & Mathews remain here?

315 A. I can't tell; I have no definite recollection. I don't think they remained a great while.

14 Q. Where did S. R. C. Mathews go from here?

A. I think he went to Philadelphia. I saw him here two or three years afterwards, and then learned from him that he had gone to Philadelphia.

15 Q. What business were Race & Mathews engaged in in Lockport?

A. Their principal business was manufacturing pumps and hydrants.

16 Q. What was the business of the Niagara Manufacturing Company?

A. Same business, and other articles, as iron sinks, and general class of that kind of goods.

17 Q. That company succeeded to the business of Race & Mathews, did it not?

A. Yes, sir.

18 Q. State if you know one Thomas R. Bailey.

A. I do.

19 Q. State how long you have known him, where he has resided during all that time, and what his occupation has been, and where he now resides.

A. I have known him since first I came to Lockport. Most of that time he resided in Lockport. He has been out of Lockport some. His business first was in the wood business—that is, in the wood-turning business. Bailey's father was an inventor, and got up sev-

eral machines in wood-working business. I think his name was Thomas R. Bailey, and they finally worked into the iron business altogether and gave up the wood-turning business. They went to manufacturing the machines the father had invented and got into a general manufacturing business in that line.

20 Q. Where was their shop located here?

316 A. My first acquaintance with their shop, it was located on what is called the Eighteen-Mile creek, below where Jackson's mill now is; I think they moved afterwards near or where Trevor's shop is now, on Market street, and after that into the building formerly occupied by the Niagara Manufacturing Company.

21 Q. Where was the shop of Race & Mathews?

A. First in the building with Holly Manufacturing Company, on the south side of Market street, and afterwards in a building on the opposite side of the street.

22 Q. Relatively to each other, how were Bailey's shops and Race & Mathews' and the Niagara Manufacturing Company's situated?

A. The Bailey establishment must first have been as much as a mile from where Race & Mathews' shop afterwards was; Race & Mathews were not here then. After Bailey moved to the Trevor building the shops must have been within three hundred or four hundred feet of each other, and so continued for some years.

23 Q. Did you know one Wm. G. McMaster?

A. I did; he resided in Lockport; he was a capitalist; he is now dead; he died within two or three years.

24 Q. State whether you know of his connection or the interest he took in the water-works of the city of Lockport.

A. I do. We used to call him the father of the water-works. He was not the inventor, but we might not have had water-works to this day if it had not been for him.

25 Q. Were you here when said water-works were put in?

A. I was; I can't give you the date of it.

317 26 Q. State whether or not you are familiar with the laying of the pipes and the setting of the hydrants for the original plant of said works.

A. I am.

27 Q. State what kind of hydrants were then put in—that is, whether patented or not; by whom manufactured; describe their general construction; state how they were marked or designated.

A. The hydrants were called the Race & Mathews hydrants, patented; at least they were so marked; manufactured by Race & Mathews. They were cast-iron hydrants, with an inside hollow tube screwed down into an elbow; this elbow contained the seat of the valve. The valve was attached to a rod working inside of the hollow tube or pipe, operated above by a wrench. This tube or body of the hydrant was enclosed in a loose cast-iron case. The hydrants were marked some Race & Mathews and some Niagara Manufacturing Company. The hydrant at McMaster's was marked Race, Mathews & Co., pat. Jan. 26, 1858. That was in front of McMaster's house on Pine street. The Race & Mathews hydrant must have been put down first. I know of no difference between the Race &

Mathews hydrant and the Niagara Manufacturing Company, only the change of name. There is a difference in attaching the case in the two hydrants; one slips inside and the other slips outside of the main body of the hydrant.

28 Q. How were those in which the cases slip outside marked?

A. Niagara Manufacturing Co., Lockport, N. Y., pat. 1858.

29 Q. State whether or not you knew one James Fleming; if yea, where does he reside, how long has he resided there, and what is his occupation.

318 A. I do. He resides in Lockport; can't say how long he has resided there. He resided there at the time of the Fleming contract, called the East avenue and Washburn street water-pipe extension. He is a general contractor. I think he is a mason or stone-cutter by occupation.

30 Q. What had you to do with that contract in any capacity and in what capacity?

A. I was appointed by the city as inspector of the work.

31 Q. How many and what kind of hydrants did Mr. Fleming order for that work, and from whom at first, if you know?

A. I think there are five hydrants on that extension. More were put in, but I think Mr. Fleming's contract called for five. He first ordered what is called the Bailey hydrant.

32 Q. State if they were delivered upon the ground; and, if so, what occurred, if you know, in regard to the Bailey hydrant.

A. The Bailey hydrant was delivered on the ground, and I think we had one of them set. He was notified by Mr. Mathews—I think I remember Mr. Mathews coming there personally—not to use them. I had a conversation with Mr. Mathews at the time. I told him I had no authority in the matter only to do as the council directed. Mr. Fleming afterward showed me a letter. I think this is the letter (referring to "Exhibit Race & Mathews-Fleming Letter") or similar to it. Mr. Fleming asked what was best to do in the matter, and I told him I had no authority in the matter, but I would call the committee on fire and water and the chief engineer together. I did so. I think then we consulted Mr. Greene, city attorney. He advised us to get a bond of indemnity from Mr. Bailey. Mr.

319 Bailey didn't furnish the bond satisfactory to Mr. Greene, and he advised us to get the hydrants of Race & Mathews.

33 Q. State if you know James Clapham. How long have you known him, where does he reside, and what is his occupation?

A. I know James Clapham. He resides in Lockport. I must have known him twenty-five or thirty years; knew him long before this work was done. He is a plumber; used to carry on that business, and afterwards used to take contracts.

34 Q. State whether you remember a contract between him and the city for what is known as the Buffalo and Transit street water-pipe extension. If yea, what part had you in that contract and in what capacity?

A. I was appointed by the city as inspector of that contract of Mr. Clapham's.

35 Q. State if you inspected the work; and, if so, what hydrants were set by Mr. Clapham in carrying out that job.

A. I inspected that work. He put in the Race & Mathews hydrants, with one exception. I think he had a Race & Mathews hydrant to go in where this other went in. He saved that one and substituted another.

36 Q. What was that other that he substituted?

A. It was the Bailey hydrant—T. R. Bailey original hydrant. I think he had permission from the committee on fire and water to put it in.

37 Q. State whether or not you accepted that as part of the contract as such inspector.

A. I did.

38 Q. How long did that Bailey hydrant remain where he set it?

320 A. I can't say; I removed it myself, but can't say how long it was there; it was there a considerable time. I think a Holly hydrant was put in its place.

39 Q. Please examine the brown model marked "Exhibit Bailey's Original Model." State whether you ever saw the same before; and, if so, where and when.

A. That looks like a model Bailey used to have at his shop.

40 Q. How does that compare with the hydrants which were delivered to Mr. Fleming, as near as you can now remember, as to construction?

A. I think they were made like this model.

41 Q. How as to the one which was set by Mr. Clapham?

A. I think that is like the one Clapham set. I think they were all alike. I think the one Clapham set was a singel-nozzle hydrant.

42 Q. Your attention has been called to-day, in the presence of counsel for both parties—Mr. Roberts as counsel for defendants, and myself as counsel for the plaintiffs, John H. Buck, Wm. W. Trevor, and others—to a hydrant set in front of the stone building on Market street, in this city, has it not?

A. It has.

43 Q. Of what construction is that hydrant?

A. Outside appearance seems to be the Bailey hydrant. I did not see the inside; it seemed to be very much like the one Mr. Clapham put in.

44 Q. How much of it did you see?

A. I saw all the outside of it, except the lower part of the base.

45 Q. You were present when the earth was removed from around the lower half of the hydrant?

A. Yes, sir.

321 46 Q. And you took certain measurements in regard to the same, did you not?

A. I did.

47 Q. What distance did you find between the bead on the base of the hydrant proper and the top of the frost-case?

A. An inch and three-eighths.

48 Q. And what distance between the bottom of the frost-case and its seat in the base?

A. An inch and five-eighths.

49 Q. You calipered the hydrant tubes just below the bead, or at the top of the frost-case, as well as the frost-case, did you not; if so, what were the measurements then taken?

A. I did. The inside tube was $6\frac{3}{4}$ inches in diameter; the diameter of the frost case was $7\frac{1}{2}$ inches, both outside diameters.

50 Q. What was the length of the frost-case?

A. Four feet six inches.

51 Q. Are you acquainted with the handwriting of Wm. G. McMaster?

A. I have seen a good deal of Mr. McMaster's writing.

52 Q. Please examine the documents now shown you and state whether you recognize the handwriting.

(Paper shown witness.)

(Objected to as immaterial.)

A. I think that is Mr. McMaster's writing.

Plaintiffs' counsel produces same, being a letter, dated Lockport, N. Y., Jan. 24, 1879, to James Flower & Bros., signed Wm. G. McMaster, and asks examiner to mark it McMaster Letter for identification.

(Defendants' counsel objected to said letter as inadmissible and incompetent for any purposes of evidence in this case.)

322 Plaintiffs' counsel offers the said letter in evidence, in connection with the testimony of this witness, subject, of course, to the said objection. Letter marked "McMaster Letter Exhibit."

(Defendants' counsel repeats his objection to the letter as inadmissible and incompetent, and gives notice that at proper time he shall move the court to expunge the same from the record in this cause.)

53 Q. In this letter is a statement as follows, to wit: "In 1863 the village (now city) of Lockport contracted with the Holly Manufacturing Company to put in the Holly water-works—the first made. B. Holly, the patentee, superintended the work on the part of the company and I superintended it on the part of the village. Race & Mathews' patent hydrants were used. In about the winter of 1866–'67 several of the hydrants were broken by frost freezing the earth to the outside movable case, which came up under an outside flange near the top of the hydrant, and broke the hydrant by perpendicular lifting." Please state what you know of your own knowledge as to such facts.

(Defendants' counsel objects to the quotations made in the interrogatory as inadmissible and incompetent, and renews his notice of motion to expunge. He further objects to the interrogatory as leading.)

A. I have known of hydrants being broken in that way in Lock-

port. I have taken hydrants up from the ground and removed them and had them repaired at the Niagara Manufacturing Company's building or at Race & Mathews', I am not sure which, and put them back in their places again. Sometimes we were compelled to get other hydrants and put in the place of those broken. Race & Mathews' hydrants were got as long as we could get them.

323 54 Q. How many hydrants broken in the city of Lockport, as near as you can now remember, have come under your observation?

A. That would be very difficult for me to tell. I have no record by which to tell; five or six, perhaps.

55 Q. Please examine the drawing to letters patent No. 19206, and state whether or not there are any hydrants now in the city of Lockport of that construction, so far as the outside case, marked "E" in said drawing, is concerned.

A. I think there is, except that where the case slides up under the hydrant flange at letter "O" it seems short.

56 Q. Give the location of a hydrant of that construction—say a near one to the place where we now are, corner of Pine and Main streets?

A. There is one on Pine street near William G. McMaster's, I think.

57 Q. How as to the one in the yard at McMaster's place?

A. That is the same construction.

58 Q. How are those marked on top?

A. "Race, Mathews & Co.; pat. Jan. 26, 1858."

59 Q. Please examine the drawings, respectively, of letters patent 75344 and letters patent reissue No. 6990, and state which, if either, represents the construction of the hydrant which you saw in Market street, in this city, yesterday.

A. Those are both the Bailey hydrants. This one represents it a little more in regard to the outside case, as I saw it in the ground yesterday (referring to patent No. 75344).

60 Q. Having reference to those drawings, state where you made the measurements concerning which you have tes-

324 tified, namely, the distance between the top of the frost-case and the bead on the base of the hydrant proper and the lower end of said case.

A. (Referring to No. 6990.) The first measurement was from top of case "C" to under side of the bead "A;" that was one and three-eighths inches. Another, from the bottom of the case "C" to the top of the valve-chamber, and that was one and five-eighths inches. The length of the case "C" was four feet six inches.

61 Q. Did you examine with me yesterday many on East avenue, in this city, hydrants set by James Fleming under this contract under your supervision as inspector? If yea, please examine the brass model now shown you, marked "Exhibit Defendants' Model," and state whether or not that represents the construction of those hydrants.

A. I did. I think the hydrants were similar in construction to

this model. The sliding case operated like that on the model. It came outside of the hydrant.

Cross-examination by Mr. ROBERTS:

62 C. Q. You have referred to two old styles of Race & Mathews' hydrants—one in front of William G. McMaster's place, on Pine street, and one in the yard of that place. The width of the outside flange which overhangs the top of the loose case in each of those hydrants is about five inches, is it not? I mean the length of the straight cylindrical part of the flange inside of which the top of the case slides, and corresponding to the flange marked "S" in the drawing of the Race & Mathews patent No. 19206.

A. I think that measures about five inches.

325 63 C. Q. When the case of those hydrants is fully down in its socket at the base of the hydrant stock how much end play is there between the top of the case and the under side of the part which supports the overhanging flange—that is to say, how much room is there for the frost to heave up the case before it will strike any shoulder upon the hydrant proper, as nearly as you now recollect?

A. I never remember measuring that, but there is considerable play there—perhaps three or four inches. Castings vary sometimes.

64 C. Q. What was the principal difficulty in respect to the action of the frost upon these old-style Race & Mathews hydrants which the new style, like the brass model "Exhibit Defendants' Model," overcame in practice?

A. That would depend upon the length of the slide in the case. To explain that mechanically would be of considerable length.

65 C. Q. How did you ascertain in practice when the frost had heaved up the sliding case of the old-style Race & Mathews hydrants to the fullest extent of the end play?

A. By water coming up around the hydrant; the same as you would discover if a water-pipe had bursted in the street.

66 C. Q. You could not tell definitely, could you, how high such sliding case had lifted without taking out the hydrant proper?

A. We couldn't tell anything about that. By actual knowledge of the fact we laid it to that cause.

67 C. Q. And when the new style of Race & Mathews hydrants were adopted how was it then in respect to ascertaining how far the frost had lifted the sliding case?

326 A. We had an opportunity of seeing the distance of the top of the outside case from the flange or bead.

68 C. Q. You have referred to the difficulty which arose between the Niagara Manufacturing Company and Mr. Fleming, or the city, about putting down the Bailey hydrant on the East avenue and Washburn street water-pipe extension which resulted in the rejection of the Bailey hydrants and the substitution of Race & Mathews' new style hydrant. Did Mr. Bailey, at that time, to your knowledge, do anything to his hydrants to obviate the cause of complaint against them or against their construction?

(Objected to as immaterial.)

A. I think not.

69 C. Q. What do you know about Mr. Bailey's putting set-screws into the bottom of the cases of his hydrants to prevent their having end play or capability of sliding up?

A. I don't know as Mr. Bailey ever put in any set-screws, but he talked with me about it, that it could be done.

70 C. Q. When was it that Mr. Bailey so talked with you about set-screws?

A. I think it was during the Fleming trouble.

71 C. Q. Did you find a set-screw in the bottom of the case of the Bailey hydrant dug up on Market street yesterday, in front of the stone building formerly occupied by the Niagara Manufacturing Company?

A. I did.

72 C. Q. You have testified that you inspected the work done by James Clapham on the Buffalo and Transit street water-pipe extension, and that Race & Mathews' hydrants were put down except that one Bailey hydrant was set. Were these Race & Mathews hydrants of the old style of construction with overhanging flange covering the top of the case, or were they of the new style of construction with the top of the case outside of the hydrant like "Exhibit Defendants' Model?"

327

A. My recollection is, they were the old pattern.

73 C. Q. Are you positive about this?

A. That is my recollection. Of course I haven't any record that I can get at that by.

74 C. Q. How lately have you examined the hydrant at the corner of Buffalo and Transit streets?

A. I have made no examination of that hydrant. I don't know but the location of that hydrant has been changed since it was first put down.

75 C. Q. You don't know, do you, that the hydrant on the corner of Buffalo and Transit streets is any different in construction from the Race & Mathews hydrant originally put down by Clapham?

A. I don't think that is the original hydrant. I think there was some trouble up there two or three years ago. The hydrant was taken up, and whether the same is back there or not I don't know. I haven't examined it lately. I did not do the repairing.

76 C. Q. If that hydrant is, in fact, a Race & Mathews new style hydrant, like "Exhibit Defendants' Model," do you know where it originally came from?

A. I do not.

77 C. Q. How many old-style Race & Mathews hydrants are still in use in the city of Lockport, as well as you can tell without actual count?

A. I can't say. My recollection is there are not many. There are some, no doubt.

328 Redirect examination by Mr. HILL:

78 Q. What did the screw which you saw taken out of the loose case upon the Bailey hydrant yesterday amount to?

A. I don't think it amounted to anything.

79 Q. Describe the screw, giving its dimensions, and point out upon the brown model, "Exhibit Bailey Original Model," its location upon the hydrant?

A. It was a small screw, three-eighths inch iron, with a square head; the screw part, from the inside of the head to the end of the screw, was one-half an inch long. It was in the outside case near the bottom. I didn't see it until Mr. Trevor handed it to me; he took it out.

80 Q. You examined this end of the screw to see whether it had come in contact with anything; what did you find in that regard?

A. I don't think the end of the screw came in contact with any hard substance.

81 Q. What became of the screw?

A. I don't know. I handed it to some other party down there; just whom I don't know.

82 Q. You found, as you state, I think, the case lifted up from the bottom, so that you are positive, are you not, that this screw had not prevented the longitudinal movement of the outside case?

(Objected to as leading.)

A. That would be difficult for me to determine. The frost-case might have been left up a little when it was put in.

83 Q. Who repaired the hydrant, or reset the same, at the corner of Buffalo and Transit streets, if it was reset and repaired?

A. I don't know.

329 84 Q. Have you ever measured that part of the case of the old-style Race & Mathews hydrant which shuts within the over-hanging flange, which usually rests even with the sidewalk at the base of the hydrant proper?

A. I did once.

85 Q. And the space which it occupies usually?

A. Not to give the accurate size.

86 Q. State whether or not the five hydrants which you say were delivered at first under the Fleming contract were taken away immediately. If not, how long did they remain on the ground where delivered?

A. They remained on the ground for some time after Fleming's contract was completed.

87 Q. State whether or not you have had any conversation prior to being called as a witness here by any party or parties representing or claiming to represent the parties defending in this suit.

A. I have not.

JOHN McCUE.

"EXHIBIT McMASTER LETTER."

LOCKPORT, N. Y., *Jan.* 24, 1879.

James Flower & Bros., Detroit, Mich.:

Your letter of 21st inst. was duly received. In 1863 the village (now city) of Lockport contracted with the Holly Manufacturing

Company to put in the Holly water-works—the first made. B. Holly, the patentee, superintended the work on the part of the company. I superintended on the part of the village. Race & Matthews' patent hydrants were used. In about the winter of 1866–'67 several of the hydrants were broken by the frost freezing the earth
330 to the outside movable case, which came up under an outside flange near the top of the hydrant and broke the hydrant by perpendicular lifting. I showed them to Mr. Race and suggested to him and Mr. Matthews to make the outside movable case so that it would override the hydrant and have a chance to be raised by the frost without doing any damage to the hydrant. I called B. Holly's attention to my proposed alteration at the time. He thought well of it. Race & Mathews made the outside movable case after that, as suggested by me. Above is all I know in relation to your inquiries. I was never in the employ of Race & Mathews.

Respectively, etc., WM. G. McMASTER.

N. B.—I understand Mr. Race is dead.

EDWIN SAXTON, a witness produced and sworn on the part of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. My name is Edwin Saxton; age, 43 years; residence, in Lockport; present occupation, keeper of meat market; I am by trade a machinist, but have not worked at it for eight or nine years.

2 Q. How long have you resided in Lockport?

A. Since close of the war, 1865.

3 Q. How were you engaged in business from the close of the war for several years?

A. I came from the army in July, 1865; during that fall attended commercial college in Buffalo; graduated in December, and after that did no business until the following March, and then, in March or April, went to work for T. R. Bailey's Sons, and worked there about a year and a half in their employ.

331 4 Q. Please examine the brown model before you, "Exhibit Bailey's Original Model," and state whether you recognize it.

A. As a model, I do recognize it; can't say whether I have ever seen this identical one before; I have seen one like it and full-sized hydrants similar to it.

5 Q. When and where did you see one like it?

A. I saw one like it in Bailey's shop when I was working for him. I should say it was in the summer of 1867; that is as near as I can recollect it.

6 Q. When and where did you first see a hydrant set up and in operation constructed like that model?

A. In the basement of the stone building occupied by Trevor, on Market street.

7 Q. When did you first see that?

A. To the best of my recollection, I should say it was in 1867. I

might be mistaken, and it may be I saw it in 1866. My recollection is it was in 1867.

Cross-examination by Mr. ROBERTS:

8 C. Q. Please state what it was that you saw in the basement of the stone building occupied by Mr. Trevor on Market street.

A. It was a hydrant similar in design to this model. Whether it was just like it in every particular I don't know. It was quite similar, at any rate.

9 C. Q. What was its size?

A. To the best of my recollection, its height was about two and one-half feet.

10 C. Q. How was it set and connected?

A. I think it was set on the wooden trunk conducting water from race to the water-wheel.

11 C. Q. And connected with the trunk so as to let the water on into this hydrant, do you mean?

332 A. Yes; the water came from the trunk into the hydrant.

12 C. Q. What is your remembrance as to whether this hydrant had any case upon it like the case upon the model "Exhibit Bailey's Original Model" before you?

A. I can't say positively; my impression is it had not; still, I don't know.

13 C. Q. When was this hydrant made, as well as you recollect?

A. I think it was made either in 1866 or the spring of 1867.

14 C. Q. How do you arrive at that date for the making of it?

A. By the fact that when I first went to work for Bailey I knew nothing about machinery; after a time, in from three to six months, I got a little insight into the business, and I was put on lathe work, and it was some time after I was put on lathe work that this hydrant was made. That is correct to the best of my recollection.

15 C. Q. Did you work on this hydrant?

A. I think I did.

16 C. Q. What work did you do upon it?

A. Some portion of the lathe work; I can't tell just what part; but my recollection is I did some part of the lathe work.

17 C. Q. How do you fix the date of your being at the Commercial College in Buffalo and of your graduation from there?

A. From memory, and I have evidence of it at my house in my diploma, dated Dec. 7th, 1865.

18 C. Q. What did you do when you first went into the employ of T. R. Bailey's Sons?

A. First as book-keeper.

333 19 C. Q. Was it in March or in April, 1866, that you were first employed at T. R. Bailey's.

A. I think it was March.

20 C. Q. How long did you serve them as book-keeper alone?

A. About two weeks; I went to straighten up his books and had got done by that time.

21 C. Q. Then what did you do?

A. I afterwards went to work in the shop; I kept his books, and spare time I worked in the shop.

22 C. Q. When did you go to work for T. R. Bailey's Sons, both as book-keeper and as a hand in the shop at spare times?

A. At or near the 1st of April, 1866.

23 C. Q. Which did you see first, the model like "Exhibit Bailey's Original Model" or the hydrant about two and one-half feet high, which was set on the water-trunk in the basement of the Trevor building?

A. I don't know that I can answer that; my impression is that it was the two-and-one-half-foot hydrant, but am not sure.

24 C. Q. State as definitely as you can when you first worked on this two-and-one-half-foot hydrant and when you first saw it set on the water-trunk in the Trevor building?

A. To the best of my recollection, it must have been in the fall of 1866 that I first worked on that hydrant, and it was either in the fall of 1866 or spring of 1867 that it was set up.

25 C. Q. When did you leave the employ of T. R. Bailey's Sons after first working for them both as book-keeper and machinist?

A. In the fall of 1867.

26 C. Q. Was any work done there before you left upon a full-sized street hydrant?

334 A. I can't say whether it was done before I left or not until after I went back there.

27 C. Q. When did you go back there to work, and in what capacity?

A. I went back in the spring of 1868, as book-keeper and machinist, the same as before I left. I think it was March, 1868.

28 C. Q. Where were you employed meantime?

A. I worked six or seven weeks for the Niagara Manufacturing Company, and afterwards for the Chase Lock Company.

29 C. Q. How long after March, 1868, did you continue in the employ of T. R. Bailey's Sons?

A. Until some time in summer or early fall of 1869.

30 C. Q. Were full-sized street hydrants manufactured there during this last period of your employment; and, if so, to what extent, and in what year?

A. There were full-sized hydrants made there while I worked for the firm, but whether during my first term or second term there I can't say. I can't tell in what year they were made.

31 C. Q. After leaving the employ of T. R. Bailey's Sons, where were you employed, and did you ever work for Bailey afterwards?

A. I was idle for a little time, and then worked for A. Johnson threshing-machine works. I never worked for Bailey afterwards.

32 C. Q. Do you remember any fuss between Mr. S. R. C. Mathews, who was connected with the Niagara Manufacturing Company, and T. R. Bailey's Sons, about the hydrant which the latter manufactured?

A. I recollect that the Baily firm made some hydrants that were to be put down in this city, and they were not put down, owing to

a difficulty of some kind with the Niagara Manufacturing Company.

335 33 C. Q. Do you remember of anything being done to those hydrants to overcome the difficulty mentioned?

A. I do; a set-screw was put into the base of the sliding case.

34 C. Q. Where was this work done of putting a set-screw into the base of the sliding case of the Bailey hydrant?

A. In the shop of Bailey's Sons, to the best of my recollection.

35 C. Q. Did you know at the time why this set-screw was put in, or did you hear Thos. R. Bailey explain the reason?

A. I couldn't say whether I heard Mr. Bailey explain the reason. I suppose I knew why it was done. I heard it talked.

36 C. Q. Why was it done, as far as you knew?

A. I understood it to be done to get over the difficulty that existed on a patent on a sliding case, and the set-screw made a stationary case.

37 C. Q. Who did you understand claimed a patent on the sliding case, at that time, which raised the difficulty which the set-screw was intended to get over?

(Objected to as mere hearsay, and therefore incompetent.)

A. The Niagara Manufacturing Company.

38 C Q. For what purpose was the small hydrant, about two and one-half feet high, made and tried in the basement of the Trevor building?

A. I understood it was made as a working model.

39 C. Q. To test or try what part of it?

A. I understood it was to try the valve more than anything else. The valve was new.

EDWIN SAXTON.

336 BARNET D. HALL, a witness produced and sworn on the part of the plaintiffs, testified as follows:

1. Q. What is your name, age, residence, and occupation?

A. Barnet D. Hall; upwards of 50 years of age; residence, Lockport; am connected with First National Farmers' and Mechanics' Savings Bank, and am secretary of the American District Steam Company; have resided in Lockport fifty-three years; was born here.

2 Q. State whether or not you knew one Wm. G. McMaster.

A. I did; I knew him forty years; he resided in Lockport. He was a capitalist. He was a merchant when I first knew him.

3 Q. What part, if any, did Mr. McMaster take in the erection of the water-works in this city?

A. I think he was appointed superintendent of the construction on the part of the city.

4 Q. You were a relative of McMaster's?

A. I married his daughter.

5 Q. State whether or not you remember of seeing a hydrant which was broken and taken out?

A. I have seen quite a number of broken hydrants taken out.

6 Q. What was generally the occasion of their breaking?

A. Generally by the action of frost.

7 Q. You knew Washburn Race?

A. Knew him well; he was my next-door neighbor for years.

8 Q. When did he come to Lockport?

A. I can't tell exactly—about the year 1860; I think he moved next door to me in 1862.

9 Q. Do you know when he left Lockport?

337 A. I think he died here, but am not sure; my impression is he died here—somewhere about 1869, I think.

10 Q. State whether or not you remember having any conversation with him in regard to changes or improvements in hydrants.

(Objected to as inadmissible and incompetent.)

A. I think I have; I know I have.

11 Q. State substantially what improvements, if any, you now remember such conversation related to.

(Same objection as to last question.)

A. One conversation related to a shell that enclosed a hydrant.

12 Q. State substantially what that was.

(Same objection.)

A. There had been a good deal of trouble about the hydrants breaking off at their connections seemingly with the mains or near that connection, and from examination it was concluded in my opinion, and of others, that the frost in heaving would crowd up the shell of the hydrant and break it off or pull it loose. My attention was called to one that was broken on Main street, near the Union hotel, by Mr. McMaster, who owned the property around there, and suggested at that time that if a larger shell was made enclosing the hydrant as it stood there would be no danger of its breaking, because, instead of getting under the shoulder, the frost would raise the shell around the outside and there would be no strain on the hydrant. Mr. Race told me several times that Mr. McMaster suggested that to him, and that he thought well of it and should adopt it.

(Counsel for defendant makes additional objection to that part of the answer which purports to state conversations with Mr. McMaster as inadmissible and immaterial.)

338 13 Q. Can you fix the date of this conversation?

(Same objection.)

A. I don't believe I could.

14 Q. Please examine the paper now shown you and state in whose handwriting it is, if you know (referring to "McMaster Letter Exhibit").

(Same objection.)

A. That is Mr. McMaster's handwriting. I know his handwriting. His correspondence is in my possession as his administrator now.

15 Q. Did you know Samuel R. C. Mathews?

A. I did. I think I first met him at Mr. Race's house; after that very frequently in a business way and socially. He lived in Lockport. I think he came here about the same time Mr. Race did. They were associated in business and lived near me and did business with me. I was merchandising here at the time. The firm was Race & Mathews, and afterwards changed to Niagara Manufacturing Company; their business merged in that of the Niagara Manufacturing Company.

16 Q. Do you know when Mr. Mathews left Lockport?

A. It must have been about 1870.

17 Q. Do you know where he went from here?

A. He claimed he was going to Philadelphia.

Cross-examination:

18 C. Q. May you not be mistaken in your recollection about the place and time of Mr. Race's death; do you not, upon reflection, remember that he died in Fulton, N. Y., about 1872 or 1873?

A. As I said before, I am not positive; either he or his brother, Whitney Race, died here.

B. D. HILL.

339 CLARENCE CURTISS, a witness produced and sworn on behalf of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. Clarence E. Curtiss; age, 19; residence, 363 Ellicott street, Buffalo, N. Y.; occupation, machinist.

2 Q. How long have you been regularly engaged in that business?

A. Between three and four years.

3 Q. You have examined, at my request, to-day a full-sized hydrant, now in Trevor's shop, in the city of Lockport, on Market street?

A. I have.

4 Q. How does that hydrant compare with the brown model now shown you, marked "Exhibit Bailey Original Model?"

(Objected to as inadmissible and incompetent, the witness not having been shown to have any experience whatever in the examination and comparison of mechanical structures, nor to be in any way qualified to act as a mechanical expert.)

A. It is exactly the same thing, so far as I can see, only the hydrant down there had two spouts.

5 Q. Please examine the two drawings now shown you, namely, the drawing to letters patent No. 75344, and the reissue thereof, No. 6990, and state which one is the most correct representation of the full-sized hydrant of which you speak.

(Same objection.)

A. No. 6990 is the correct one; it shows the case here shoved down, while the other shows the case immovable.

6 Q. State whether or not you have been accustomed to working from drawings?

340 A. I have.

7 Q. How long have you thus been accustomed to work?

A. About three years.

8 Q. Where?

A. In Collignor's shop in Buffalo, corner Perry and Washington streets; also, in Brooks' locomotive works at Dunkirk; Erie railroad shop, Buffalo; and for T. R. Bailey, Owosso, Mich.

9 Q. Have you at my request this afternoon taken the measurements of the aforesaid full-sized hydrant, have you not?

A. I have.

10 Q. Give the measurements,

A. Over all, 7 feet 3¾ inches; in diameter, outside of casing, about midway of length, 7½ inches; outside diameter of flange at bottom of case, 8¾ inches; outside diameter through the base, just below the case, 8 inches; outside diameter of valve-chamber, 10 inches; connection with main is 6¾ inches in diameter; from the top of the base to the bottom of the case, 1½ inches; outside diameter of hydrant stock at top of case, 6¾ inches; from the top of case to the bead, 1¼ inch; from the bead to top of hydrant, 2 feet.

Cross-examination:

11 C. Q. Are you in the employ of Thomas R. Bailey at Owosso, Michigan, at the present time?

A. I am not.

12 C. Q. When did you cease to be employed there?

A. Last October; I don't know the exact date.

13 C. Q. Are you a relative of his?

A. I am not. CLARENCE E. CURTISS.

APRIL 12.

341 CLARENCE E. CURTISS, recalled for plaintiffs.

14 Q. After adjournment last evening you were present in Mr. Trevor's shop and saw the base of the aforesaid hydrant removed from the hydrant stock, were you not?

A. I was.

15 Q. This was in presence of Mr. Roberts and myself?

A. It was.

16 Q. State whether you made further measurements as to the hydrant?

A. I did. The diameter of the flange on top of the base of its connection was 7⅞ inches; the inside diameter of the lower end of the front case was 7 15/16 inches; the thickness of the flange at the bottom of the front case was ⅜ of an inch.

17 Q. How far was the frost-case raised from its seat?

A. It was raised from its seat ¾ of an inch.

18 Q. How did you determine that?

A. It was raised up and there was a core of sand inside there (in-

dicating on the model) which held it up so it couldn't get back, and I measured that and found it $\frac{3}{4}$ of an inch.

CLARENCE E. CURTISS.

Evidence for plaintiffs, taken before Warren C. Stone, special examiner, Washington, D. C., April 15, 1884.

Present: Edward J. Hill, Esq., of counsel for plaintiffs; George L. Roberts, Esq., of counsel for defendants.

342 FRANK A. SPEARE, a witness produced and sworn in behalf of plaintiffs, testified as follows:

Examined by Mr. HILL:

1 Q. What is your name, age, residence and occupation?

A. Age, 32; my name is Frank A. Speare; residence, Washington, D. C.; occupation, file clerk, U. S. Patent Office.

2 Q. In your official capacity you have charge of the file-wrappers and contents of applications for letters patent, have you not? If yea, please produce the original file-wrapper and contents of letters patent No. 75344, which were issued to T. R. Bailey, Jr., March 10, 1868.

A. I have charge of the patented files; here is the file inquired for.

(The witness produced the same for inspection.)

3 Q. Will you please read from the file-wrapper which you have produced, so that the examiner may take a complete copy thereof of the entries on said wapper?

The witness reads:

$\frac{4\,6}{4\,6}$ 1867.
No. 75344, W.
T. R. Bailey, Jr., of Lockport, county of Niagara, State of New York.
Hydrant fire-plug.
Rec'd Sept. 16, 1867.
Petition, Sept. 16, 1867.
Affidavit, Sept. 16, 1867.
Specification, Sept. 16, 1867.
Drawing, Sept. 16, 1867.
Model, Sept. 16, 1867.
343 Cert. dep.
Cash, $15, Sept. 13, 1867.
Add'l fee cert.
Add'l fee, cash, $20, Feb. 27, '68.
Examined Dec. 17, 1867, Connolly.
2. Issue, A. M. Stout, Dec. 20, '67.
4. Patented March 10, 1868.
Recorded vol. —, page —.
Circular, Dec. 20, 1867.

MUNN & CO., *Pres't.*

1867.

Across the face of the wrapper in red ink is endorsed:
Reissued March 14, '76.
No. 6990.

The back of the wrapper:

1867.

Oct. 24, '67, Sp. sent.
Nov. 30, '67, Sp. Dr. sent.

Across the back are the words:
Imp't in hydrants.

1867.

4 Q. Please compare the copy made with the original file-wrapper and state whether you find it to be a true and correct copy of entries made on said file-wrapper and the whole and every part thereof.

A. I have examined the copy and found it correct.

5 Q. What else have you brought with you relating to letters patent No. 75344?

A. I have brought the model and the contents of the file-wrapper.

6 Q. Please produce the model.

A. Here it is.

7 Q. Describe the condition in which you find it.

344 A. As far as I can see, it is in a very good condition considering what it has been through?

8 Q. What has it been through?

A. It looks as though it had passed through the fire of September 24, 1877; the north and west wings of the Patent Office model-room were burned.

9 Q. Attached to said model is a card or tag; please read the matter written or printed thereon.

A. 75344. T. R. Bailey, Jr., hydrant, J. C., patented March 10, 1868. On the reverse side is printed, "Model taken from the debris of the fire of Sept. 24, 1877."

10 Q. Please examine the copy you have given carefully with the original and state whether you find it to be a true and correct copy of said original and the whole thereof.

A. I have examined it and find it correct.

FRANK A. SPEARE.

GEORGE T. SMALLWOOD, a witness produced and sworn on behalf of the plaintiffs, testifies as follows:

Examined by Mr. HILL:

1 Q. What is your name, age, residence, and occupation?

A. My age is 31; my name is George T. Smallwood; residence, Washington, D. C.; occupation, mechanical draughtsman.

2 Q. How long have you been engaged in that occupation?

A. Since 1872.

3 Q. Please compare the upright portion of "Exhibit Bailey

Original Model" as it is now detached from said model—that is to say, with the base and the movable case taken therefrom—with
345 the remains of the model which has just been produced by Mr. Speare, the former witness, and state what, if any, points of identity you find in common between them.

A. On examination I find the exterior, and, so far as accessible, the interior, to be—I can't say exactly counterparts—but I should judge that the two pieces of casting which I hold in my hands (referring to said exhibit and to said Patent-Office model) must have been cast in the same or very similar molds, the only apparent difference, so far as I can see, being in the length of the threaded portion of the base of said casting, the Patent-Office model being the longer of the two—about one-twelfth of an inch the longer of the two. One has been burned and painted—that is the Patent-Office model, and that, perhaps, would make some difference in the diameters. The five-sided nuts at the top appear to be alike in size. There is a slight difference in the diameter at the base of the castings, the Patent-Office model having been warped by fire. The threads at the base of the castings, respectively, appear to be the same—cut with the same tool. Having removed the caps from the top of the castings, I find the threads upon said castings to be similar. The exhibit has a brass bushing and a cap thereon at the nozzle, both of which are absent from the Patent-Office model. The diameter of the nozzle appear to be the same, so far as the castings are concerned. As to the caps I find them to be similar. The follower nut in the gland of the exhibit is screwed in further than in the model.

Cross-examination by Mr. ROBERTS:

4 C. Q. Please compare the threaded portion at the base of
346 the two castings a little further and state what you find to have been the apparent effect of the fire upon that part of the Patent-Office model.

A. The effect seems to have been to have changed the shape somewhat from a true cylinder. I cannot say whether the fire caused the difference in the threaded portion of the castings or not, as the exhibit shows the marks of filing at the base, whereas in the Patent-Office model no filing is apparent.

5 C. Q. All that remains of this Patent-Office model is the simple tubular casting to which the hemispherical cap is screwed, and that with its contained nut and hollow spindle, is it not so?

A. Yes.

GEO. T. SMALLWOOD.

FRANK A. SPEARE recalled.

Examined by Mr. HILL:

11 Q. If you brought another model from the Patent Office with you, pleace produce and describe it?

A. I brought the model of patent No. 19206, W. Race and S. R. C. Mathews' hydrant, I. C., patented January 26, 1858. This model

was taken from the debris of the fire of Sept. 24, 1877, and appears to be in very good order, so far as I can see.

FRANK A. SPEARE.

GEORGE T. SMALLWOOD recalled.

Examined by Mr. HILL:

6 Q. Please examine the model just produced by Mr. Speare, taking the same apart. You find the hydrant tube, the elbow which connects the main, and a detachable case, do you not?

A. I do.

7 Q. Please replace the parts, and state whether or not the said case is loose.

347 A. No. I find it to be tight. It could be loosened by unscrewing the elbow that connects with the main.

8 Q. Please examine the drawing of letters patent No. 19206, and compare the same with said model, so far as said case is concerned, and state how you find it.

A. I have compared the said model with said drawing, and find them to agree, so far as the case is concerned.

Cross-examination by Mr. ROBERTS:

9 C. Q. All the leather packing and the leather of the valve have been burned out of this model, so that nothing but the metallic parts remain; is it not so?

A. I should judge so, as there are no leather pieces in the model.

10 C. Q. What thickness of washer would be required where the hydrant stock is seated upon the elbow, in order to make the case loose when the parts are screwed up?

A. About one-sixteenth of an inch, I find, upon measurement.

GEO. T. SMALLWOOD.

Adjourned till Wednesday, April 16, 1884, at 10 o'clock a. m.

WEDNESDAY, *April* 16, 1884, 10 o'clock A. M.

Direct examination of FRANK A. SPEARE resumed.

By Mr. HILL:

12 Q. Please produce the original file-wrapper and contents in your custody pertaining to letters patent No. 96959, and give the entries upon the same.

348 A. Here is the file-wrapper and contents referred to:

$\frac{2\,9}{3}$ 1868.

No. 96959.

Washburn Race & S. R. C. Mathews, ass'ors to S. R. C. Mathews, of Lockport, county of Niagara, State of New York.

Hydrants.

Rec'd Oct. 29, 1868.

Petition, Oct. 29, 1868.

Affidavit, Oct. 29, 1868.

Specifications, Oct. 29, 1868.
1. Drawing, Oct. 29, 1868.
Model, Oct. 29, 1868.
1. Cert. dep., $15, Oct. 29, 1868.
Cash.
1. Add'l fee cert., $20, Nov. 5, 1869.
Add'l fee cash.
Examined Oct. 21, '69, Connolly.
2. Issue, Grinnell, Oct. 21, '69.
3. Patented Nov. 16, 1869.
Recorded vol. —, page —.
Circular, Oct. 22, 1869.

J. FRAZIER & CO.,
Rochester, N. Y.

1868.

Written across the face is the following:

Reissued Feb. 26, 1884, No. 10452.

On the back.

1868.

Dec. 17, 1868, rejected.

Across the back:

Impt. in hydrant.

1868.

349 I have compared the same and find the foregoing copy to be a true and correct copy of all entries on said file-wrapper.

Cross-examination by Mr. ROBERTS:

13 C. Q. Is the model originally deposited with the last-mentioned application for patent No. 96959 still in existence?

A. I don't know.

14 C. Q. Have you, since answering the last preceding interrogatory, been to the Patent Office to investigate the subject there inquired about; if so, with what result?

A. I have; I went to the model-room to examine the models, also the books containing the list of all models for hydrants that were restored from the fire, and don't find any entry or any model in relation to patent No. 96959 to Race & Mathews; I also examined the original drawing on file in the Patent Office and find endorsed on the back thereof, in lead pencil, "Model burned."

15 C. Q. From your examination and your knowledge of the practice of the Patent Office in respect to models destroyed by the fire of September 24, 1877, what can you say as to the fate of the model belonging to patent No. 96959?

A. I believe it was destroyed by that fire so it was perfectly unrecognizable.

16 C. Q. In reading from the tags of the models produced in this

examination you have noticed the letters "I. C.;" what do they signify?

A. Incomplete.

FRANK A. SPEARE.

350 ALEXANDER MAHON, a witness produced and sworn on behalf of plaintiffs, testifies as follows:

Examined by Mr. HILL:

1 Q. What is your name, age, residence, and occupation?

A. Alexander Mahon; age, 33; residence, Washington City, D. C.; occupation, a patent attorney.

2 Q. How long have you been engaged in that occupation?

A. Seventeen years next August.

3 Q. You have been employed in the Patent Office, have you not; if so, in what capacities respectively, and for how long?

A. I was employed in the Patent Office from May, 1861, to 1st of August, 1867; I went to the office as a messenger in the room for copying and recording examiners' letters; I also afterwards copied and recorded examiners' letters, and was transferred from that room to the chief clerk's room to receive the moneys and cases filed in the office.

4. Q. State whether or not you are acquainted with the signature of Munn & Co., and were during the time you were in said office?

A. I am, by seeing it on the drawings that came out in cases, and knew the signature at that time, as all the letters and papers that came to the Patent Office came through my hands.

5. Q. Please examine the document now handed you, and state if you know the signature thereto?

A. It is the signature of Munn & Co. as signed to their letters.

By Mr. HILL: We offer the document referred to in evidence, being a letter, dated New York city, 10 Sep., 1867, from Munn
351 & Co. to T. R. Bailey's Sons, marked "Exhibit Munn & Co. Letter." I also offer in evidence, in connection with said "Exhibit Munn & Co. Letter," letter-press copy of letter dated Sept. 7, from T. R. Bailey's Sons to Munn & Co., New York, marked "Exhibit Copy Baileys Sons' Letter."

(Counsel for defendants objects to the last-mentioned letter as inadmissible and incompetent—1st, because not properly proved and opportunity given for cross-examination in respect thereto; and, 2d, because the letter-press sheet upon which it appears is not whole, but cut close to the signature, and does not show that what appears thereon is all that was written at that time as a part of the same letter.)

6 Q. Please look at file-wrapper pertaining to letters patent No. 75344 to T. R. Bailey, Jr., and state if you know in whose handwriting the entries thereon are; specify them, respectively.

A. "T. R. Bailey, Jr., Lockport, Niagara, New York, hydrant fire-

plug, Sept. 16, 1867." "Ditto marks down to and opposite to the printed word model, the dollar mark $15, Sept. 13, 1867, and Munn & Co., pres't," are in the handwriting of J. D. Patton, who died several years ago in this city. The dollar mark "$20, Feb. 27, '68," I think, are also in his handwriting. The "Dec. 17, 1867," "Connolly," opposite the printed word "examined," were written by Thomas C. Connolly, who died in this city several years ago. After the printed word "issue" "A. M. Stout" is signed, either by A. M. Stout or his son, whom he had at that time as private secretary, who, I know, signed some of the files for his father. "Dec. 20, '67," was written by some one in the draftsmen room, but I couldn't state by whom, opposite the printed word "patented." "March 10
352 (printed) and 8" are in the handwriting of Thomas C. Smith, who now resides in this city. Opposite the word "circular," "Dec. 20, 1867," is in the handwriting of A. M. Stout, Jr.; on the back of the file, "Oct. 24 or 25, '67, sp. sent; Nov. 30, '67, sp. dr. sent; imp't in hydrants," is in the handwriting of Thomas C. Connolly. The first entry of these last two mean that the specification was sent to attorney; the next one means that the specification and tracing was sent to the attorney, at that time the practice being to require a thin drawing, as also a thick one, the tracing to go with the patent when issued; and also the practice was to return the specification to the attorney to make any corrections that he might desire, and afterwards being returned to the office. The words in red ink, "reissued March 14, '76, No. 6990," I think were made by Mr. F. A. Speare; but this mode of making a reissue, number and date on the original file, is a comparatively new thing, and the reason that I state that it is in his handwriting is that it resembles his, and I know that he did have charge of making such entries on the files.

7 Q. Are these the original entries, from which other entries are made in record books kept for that purpose in the Patent Office, or are they copied from original entries made in such record books? Please explain this matter fully in your answer.

A. The first words and letters I quoted in the first part of my answer, down to and including "Munn & Co., pres't," are all original entries, from which the record books are made up. "Dec. 17, '67, Connolly," are put on when the examiner signs the case or sends it to issue. "A. M. Stout, Dec. 20, '67," is put on by the chief clerk, who is supposed to send the cases to issue, or did at that time. "March 10, 8," were put on by the clerk who sent the patents
353 out; and "Dec. 20, 1867," were put on by the clerk who sent out the circular letter of allowance, and are all, as I understand it, original entries, from which all the records of the office are made up.

8 Q. Please examine the original application which you find in this file-wrapper and state by whom the said application was filed, if you know, and how you know the same.

A. I have examined the application and it shows that it was filed by Munn & Co.; from looking at the sheet, petition, and oath, it appears from the records or marks that we were required to make that this case was filed with a number of other cases, and was

acknowledged by mail. If it had been handed in separately we would find in blue pencil at the top the mark "H," which would stand for hand, and the dollar mark $15, "model," and drawing. The practice of Munn & Co., though, at that time was to file their cases once a week with a check for the whole amount of their final fees and application, giving a list of the names of the cases, and that paper was receipted.

9 Q. Please examine the file-wrapper pertaining to letters patent No. 96959, to Race & Mathews, and state in whose handwriting, respectively, the entries thereon made are.

A. Most of these entries I cannot state positively who they were made by, but three or four I can.

10 Q. Designate those.

A. Opposite the printed word "Examined October 21, '69, Connolly," is in the handwriting of Thomas C. Connolly, before referred to; opposite the word "issue, Grinnell" was signed either by James S. Grinnell, chief clerk at that time, or by his private secretary; opposite the word "patented November 16 and 9," are in the
354 handwriting of T. C. Smith; "December 17, 1868, rejected," is in the handwriting of an assistant in Mr. Connolly's room; I cannot state his name; "imp't in hydrants" was written by Mr. Thomas C. Connolly.

11 Q. What office or position did Thomas C. Connolly occupy at that time in the United States Patent Office?

A. He was one of the principal examiners.

12 Q. Please examine the original application and other contents of the file-wrapper and state whether you find any alteration, interlineation, or erasure showing an amendment?

A. On the first page, line 10, I find the capital "W" has been substituted for a small letter; line 28, same page, the word "as" appears to have been erased; the third and fourth pages appear to be in a different handwriting from that of the first and second, but there is nothing in the case that I can see which shows that the case was ever amended in any way after being filed in the Patent Office

13 Q. Does the entry upon the back of said file-wrapper, "Dec. 17, 1868, rejected," relate to, or is it in any way connected with, any of the contents of the said file-wrapper? If yea, state what.

A. It means that in the file-wrapper will be found a letter rejecting the claim.

14 Q. Do you find such a letter in the said file-wrapper?

A. I do.

15 Q. Have you made a copy thereof—carefully compared the same with the original? If yea, please produce said copy and append the same to this your deposition, and state whether the same is a true and correct copy of the whole and every part thereof.

355 A. I have made a copy thereof, and carefully compared the same, and hand the copy I have made to the examiner. The same is a correct copy of every part thereof, so far as I can see.

16 Q. I notice that there is no signature of the Commissioner upon said letter. How do you account for that?

(Objected to as incompetent.)

A. The way these letters were written at that time, the examiners had these blanks without signatures to them; the examiner filled out one of them blanks, which is his original record; it was sent from him to the copying and recording room, where it was copied and recorded, and that copy either had the Commissioner's name stamped on it or was signed by the Commissioner.

17 Q. What was done with the copy thus signed by the Commissioner?

(Same objection.)

A. It should have been sent to J. Fraser & Co., Rochester, New York.

18 Q. State whether or not there is any mark upon that letter in said file-wrapper indicating that such copy was sent; if so, what mark?

A. Mark "18," in the upper left-hand corner, shows that it was sent on the 18th of December, 1868, and was put there by the clerk who made the copy; these figures were made by F. W. Ritter, who has since died.

19 Q. How were such letters sent?

A. After being signed by the Commissioner, one of the clerks in the room addressed an envelope to the attorney, put the letter in it, put it in the Patent-Office mail-bag.

(Objected to as incompetent.)

356 By Mr. HILL: Plaintiffs' counsel notifies Mr. G. L. Roberts, of counsel in this case, representing Mr. S. R. C. Mathews, to produce on the hearing of this cause that certain letter from the Commissioner of Patents, dated Dec. 17, 1868, to W. Race and S. R. C. Mathews, care J. Fraser & Co., Rochester, New York, or secondary evidence of its contents will be adduced.

20 Q. Where and in what book, if you know, is said letter recorded?

(Objected to as incompetent, the witness not having been in the employ of the Patent Office at the time and not being at present the custodian of any Patent-Office record.)

A. It is recorded in volume 156, letter-book for the month of December, 1868, page 386, the page being shown by the figures 386 in the lower left-hand corner of said letter, as found in said file-wrapper.

21 Q. Have you examined said book and do you find the said letter there recorded?

A. I have examined the letter-book and find the letter was recorded in the usual way, which corresponds to this letter (referring to the letter in the file-wrapper).

22 Q. Please take "Exhibit Bailey Original Model" apart, and substitute in place the hydrant tube or stock, putting the loose case upon it, the relic of the Patent-Office model pertaining to letters pat-

ent No. 75344, and state how much, if any, end play the said case has, measuring from the bead at the base of the hydrant proper.

(Objected to as immaterial.)

A. I have done as requested; I find that it moves fully a quarter of an inch up and down, or has a play.

357 Q. Please examine Patent-Office model appertaining to letters patent No. 19206, and state whether you find the same shows in any way or manner a detached or a loose case.

A. I have examined the model referred to and find that it has a case which can be detached, but when the parts are put together the case has no movement.

Cross-examination by Mr. ROBERTS:

24 C. Q. Will you now replace the parts of "Exhibit Bailey's Original Model," and state how much end play the case has with the brass bushings in the same position relatively to the other parts as they were when the hydrant-stock of the remains of the Patent-Office model was substituted for the hydrant-stock of this exhibit, as when you answered interrogatory 22?

A. It doesn't screw up in the base as it did with the remains of the Patent-Office model, but screwing it up as tight as I can I find the case has a play up and down of scant three-sixteenths of an inch, referring to "Exhibit Bailey's Original Model."

25 C. Q. What is the position of the brass bushing in the base of the hydrant relatively to the top of the iron casting constituting that base—that is to say, is such brass bushing higher than the top of that casting, and was it so when you gave the measurements stated in your answers to direct interrogatory 22, and to cross-interrogatory 24?

A. It projected up both times when I made both measurements, but I didn't measure it to see how much; I have measured it

358 now; it projects up about three thirty-seconds of an inch; I don't think it has been moved in any way since I applied it to the Patent-Office model.

Redirect examination by Mr. HILL:

26 Q. State whether you have examined and can state whether any patent issued on January 28, 1858, from the United States Patent Office to any person or persons, for an improvement in hydrants, or otherwise relating to hydrants or fire-plugs. If yea, what do you find in that regard?

A. I have examined the records and find that no patent was issued to any one on January 28, 1858, and that the issue dates of that month were January 5, 12, 19, and 26. Those were the only dates patents were issued on during that month in 1858, or could possibly have been issued on.

Plaintiffs offer in evidence copy of Commissioner's and examiner's letter, marked "Exhibit Mahon Copy."

ALEXANDER MAHON.

By Mr. HILL: This concludes the oral testimony on the part of the plaintiffs, under the rule heretofore entered and the stipulations heretofore made in this cause.

"EXHIBIT MUNN & CO. LETTER."

OFFICE OF THE SCIENTIFIC AMERICAN,
No. 37 PARK ROW, NEW YORK CITY, 10 *Sept.*, 1867.

Messrs. T. R. Bailey's Sons.

DEAR SIRS: Your specification and letter of the 7th inst., covering draft for $30, are at hand.

359 The case will be sent to the Patent Office without delay. Cost of engraving and publication, $25. See enclosed circular.

Respectfully yours, MUNN & CO.

[2-cent revenue stamp, cancelled.]

"EXHIBIT COPY BAILEY'S SONS' LETTER."

SEPT. 7, —7.

Messrs. Munn & Co., New York.

GENTS: Enclosed we hand you draft for $30. Specifications were mailed to you this morning, properly executed. What will an illustration in hydrant cost and how soon could you do it?

Respectfully yours, T. R. BAILEY'S SONS.

"EXHIBIT MAHON COPY."

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 17, 1868.

W. Race and S. R. C. Mathews, care J. Fraser & Co., Rochester, N. Y.

SIRS: Please find below a communication from the examiner in relation to your application for a hydrant, filed Oct. 29, 1868.

Very respectfully,
—— ——,
Commissioner.

EXAMINERS' ROOM No. 96.

A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention.

T. C. CONNOLLY, *Examiner.*

360 *Defendant's Evidence.*

JAMES FLOWER *et al. vs.* THE CITY OF DETROIT *et al.*

Testimony taken before John T. Joyce, special examiner, at Lockport, N. Y., May 27, 1884.

Present: E. J. Hill, of counsel for plaintiffs; Geo. L. Roberts, of counsel for defendants.

CHARLES H. SQUIRES, recalled by defendants as a witness in their behalf, testified as follows:

1 Q. What is your name, and have you before testified in this case?

A. Charles H. Squires. I have before testified; I suppose it was in this case.

2 Q. Are you still city clerk of the city of Lockport, and have you here present an original book of records of the proceedings of the common council?

A. Yes, sir.

3 Q. Will you please turn to the records of the meeting of the common council, held July 1, 1867, and state whether you find anything recorded therein relating to action about the broken hydrant; and, if so, what?

A. I do find the following under date Monday, July 1,
361 1867: "The matter of the breakage of the private hydrants at O. C. & E. C. Wright & Co.'s was referred to the committee on fire and water." This is from book of city records No. 2, page 59.

4 Q. Are the original bills and reports of the committee on fire and water for the year 1867 still in existence; and, if not, what has happened to them?

A. I think they were destroyed by fire at the burning of the Hodge Opera House January 5, 1881; the city clerk's office was in that building at that time, and all records not in the safe were destroyed—that is, all records previous to 1868.

C. H. SQUIRES.

OLIVER C. WRIGHT, a witness produced and sworn on behalf of defendants, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. Oliver C. Wright; residence, Lockport; occupation, bookseller and stationer, or was so until quite recently; age, 64 years.

2 Q. How long have you resided in Lockport and carried on business here as bookseller and stationer?

A. Forty-three years.

3 Q. Under what business name?

A. Part of the time individually and part of the time in copartnership with my brother, E. C. Wright; from 1851 to 1864 the firm was O. C. & E. C. Wright; previous to that individually; after 1864 we had a partner, and the firm was O. C. & E. C. Wright & Co.; in 1867 it was O. C. & E. C. Wright again; I think it was in September, 1867, that it became O. C. & E. C. Wright again.

4 Q. Do you remember a hydrant set in front of your store in the city of Lockport; and, if so, when was the first one set there, and who owned it?

362 A. I remember it; it was set when we were laying the city water-works by the Holly Manufacturing Company, I think, in 1863, but can't be positive about the date, but it was when the water-works were first built. It was owned by four parties. Four stores joined in the ownership—the City Bank, on corner of Pine and Main streets; Folger & Collier, O. C. & E. C. Wright, and Jason

Collier were the four owners. We all clubbed together and had it set it out on our private account.

5 Q. Do you remember the circumstances referred to in the city record of July 1, 1867, in the following language: "The matter of the breakage of the private hydrant at O. C. & E. C. Wright & Co.'s was referred to the committee on fire and water?"

(Objected to as leading.)

A. I remember all except the date. If the record says so it is probably right; I remember the fact.

6 Q. State what you remember about this breakage and what was done.

A. My recollection is that the hydrant was broken by some performance of the fire department—by some carelessness or negligence on their part that caused it to be done, and the city authorities were responsible for it, and we asked them to replace it, and they did so.

7 Q. Of whose manufacture was the hydrant first set in front of your store when the water-works were put in?

A. Race & Mathews.

8 Q. And of whose manufacture was the hydrant which was put in to replace the first one when broken?

A. Niagara Manufacturing Company.

9 Q. Where is that hydrant now?

363 A. It was where it was set at the time—stands there to-day.

10 Q. How does it compare in construction with the hydrant now shown you lying upon the floor in this room?

A. There is a little variation in the lettering on the top of the cap; the rest appears to be about the same thing.

11 Q. What is the lettering on the top of the cap of the hydrant in front of your old store?

A. Niagara M'n'f'g Co., Lockport, N. Y. Pat. 1858.

Cross-examination by Mr. HILL:

12 C. Q. Did you ever manufacture any hydrants?

A. No, sir.

13 C. Q. You are not familiar with the construction of hydrants?

A. Not at all.

14 C. Q. You do not know whether that hydrant in front of your store, concerning which you have testified, has upon it a loose or sliding case or not, do you?

A. It has a case like this (referring to hydrant on the floor).

15 C. Q. Did the city promptly replace the broken hydrant in 1867?

A. They did; but a short time elapsed from the time we asked them to replace it until it was done.

The hydrant upon the floor referred to by this witness is put in evidence by defendants and marked "Exhibit Race & Mathews' Hydrant."

(Objected to as immaterial and incompetent, the same being too large and cumbersome.)

O. C. WRIGHT.

364 WILLIAM P. FIELD, a witness produced and sworn on behalf of defendants, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. William P. Field; age, 56; occupation, machinist; residence, Lockport.

2 Q. How long have you been practically engaged in the business of machinist, and how long have you resided in Lockport?

A. Since I was 21 years old I have been a machinist, practically engaged as such; lived in Lockport since 1859.

3 Q. Did you have anything to do with putting in the water-works of the city of Lockport; and, if so, what and when was it?

A. I did, in 1863. I had charge of laying the pipes and hydrants in the city of Lockport.

4 Q. By whom were you then employed, and how long did such employment continue?

A. By the Holly Manufacturing Company, and have worked for them until a year ago last January.

5 Q. Of whose manufacture were the hydrants set in the city of Lockport when the water-works were first put in?

A. Race & Mathews.

6 Q. Have you to-day examined the hydrant in the yard of the late William G. McMaster; and, if so, what do you know about it?

A. I think it is the same hydrant I put in there when the water-works were put in.

7 Q. How does it compare in construction with the other Race & Mathews hydrants put in at the time the water-works were put in?

A. I think they were all alike.

365 8 Q. What provision, if any, was there in these hydrants for protecting the hydrant stock?

A. I should call it a frost-case, a slip-joint.

9 Q. How was the slip-joint of the frost-case at the top constructed in these early hydrants of Race & Mathews' manufacture?

A. The outside top of the hydrant projected over the slip-joint.

10 Q. And how much play did this slip-joint allow the frost-case?

A. From an inch and a half to an inch and three-quarters.

11 Q. Do you remember any advertising sheet put out by Race, Mathews & Co.; if so, what was contained thereon, so far as you recollect?

(Objected to; that the sheet is the best evidence.)

A. They had a cut of their hydrant; I couldn't say whether it was in pamphlet form or a sheet, now.

12 Q. Please look at the sheet now shown you, and state whether you remember to have ever seen it before, and when first.

A. I should say that was the cut; I couldn't possibly give the time when I saw it; it was in the early days of those hydrants here.

13 Q. How does the cut of the hydrant upon the sheet, and especially that on the right-hand side showing interior construction, compare with the hydrants of Race & Mathews' manufacture put into the city of Lockport when the water-works were constructed?

A. The hydrants I put in had a slip-joint that went up under the side of case of the hydrant top; these two cuts represent the construction of those hydrants.

367 & 368 (The sheet shown to and referred to by the witness is put in evidence and marked "Exhibit Race, Mathews & Co. Lithograph.")

(Here follows diagram marked p. 366.)

14 Q. Do you remember the first hydrant which was set in front of O. C. & E. C. Wright's store on Maine street; and, if so, when was it set and by whom?

A. I do. It was set by me in 1863, at the time the water-works were put in.

15 Q. Do you remember anything happening to that hydrant?

A. The hydrant was broke.

16 Q. What became of it, as far as you know?

A. It was taken out and a new one put in place of it.

17 Q. How did the new one put in place of it compare in construction with the first one which was broken?

A. I think this one had a slip-joint that projected outside.

18 Q. Please look at the hydrant on the floor, "Exhibit Race & Mathews Hydrant," and state how it compares in construction with the second hydrant set in front of O. C. & E. C. Wright's store to replace the first one which was broken.

A. I think it is very near the same thing.

19 Q. Did you have anything to do with the setting of the second hydrant in front of O. C. & E. C. Wright's store?

A. I think I set that also.

WM. P. FIELD.

WILLIAM W. TREVOR, a witness produced and sworn on behalf of defendants, testified as follows:

1 Q. What is your name, age, residence, and occupation?

369 A. William W. Trevor; age, 42 years; residence, Lockport; occupation, manufacturer.

2 Q. How long have you resided and done business in Lockport?

A. Twenty-one years, about.

3 Q. Where in Lockport has been your place of business?

A. Market street, in building known as the Trevor building.

4 Q. Who owned and who carried on business in the Trevor building from 1865 or previously?

A. My father owned it since 1857 till his death, in 1881. In 1865 J. D. & G. S. Trevor carried on business there and the same year T. R. Bailey's Sons moved into the other building. I think it was

then T. R. Bailey & Son. Before that they had occupied a room in the Trevor building; think they moved in there in 1858 or 1859.

5 Q. Is J. D. Trevor now living and where does G. S. Trevor live?

A. J. D. Trevor is not living. G. S. Trevor resides in Detroit.

6 Q. You mention T. R. Bailey & Son moving into another building in 1865; where was that building and on whose land?

A. It was on the easterly side of the Trevor building and on my father's land; it was a one-story wooden building. The Trevor building is a four-story stone building, two stories on one end and four stories on the other end—two on street and four on canal.

7 Q. After the Baileys removed from this one-story wooden building, where did they carry on business next?

A. They moved into the shop formerly occupied by the Ni-
370 agara Manufacturing Company, a stone building about 150 feet easterly of Trevor's building, on Market street—same side of street.

8 Q. About when was this removal?

A. 1871, I think.

9 Q. Where did you do business during the time that T. R. Bailey's Sons occupied the wooden building between the Trevor stone building and the stone building formerly occupied by the Niagara Manufacturing Company?

A. The Trevor building; part of time in fourth story, part of time in the cellar, and part of time in other stories; while in fourth story was doing business for myself, while in cellar was with C. R. Penfield, and when in rest of shop was one of Trevor & Co.

10 Q. Since then have you occupied parts of the same building, and what has been the character of your manufacture?

A. Have occupied parts of same building since; manufacture were shingle, heading, and stave machinery.

11 Q. I call your attention to a hydrant here present, and ask you to state where it came from.

A. It came from the street in front of the old building formerly occupied by the Niagara Manufacturing Company; also occupied in part by T. R. Bailey & Vail. I dug it up April 10, 1884, at request of Geo. L. Roberts, counsel for defendants, and it has been in my custody ever since until sent to this office.

12 Q. Do you remember when this hydrant was first set in the place from which you dug it up, who set it there, and of whose manufacture it was?

A. I do not remember when it was set. I don't know who set it. All I know of the manufacture of it is the stamp on it—the lettering. I recollect it was set there during the time Bailey & Vail occupied part of the building. That is the best of my recollection about it.

371 13 Q. Who were present at the time the digging around the bottom of this hydrant took place preparatory to taking it out?

A. George L. Roberts, James M. Drennan, Edward J. Hill, Thos. R. Bailey, John H. Buck, John McCue, myself, and some others.

then T. R. Bailey & Son. Before that they had occupied a room in the Trevor building; think they moved in there in 1858 or 1859.

5 Q. Is J. D. Trevor now living and where does G. S. Trevor live?

A. J. D. Trevor is not living. G. S. Trevor resides in Detroit.

6 Q. You mention T. R. Bailey & Son moving into another building in 1865; where was that building and on whose land?

A. It was on the easterly side of the Trevor building and on my father's land; it was a one-story wooden building. The Trevor building is a four-story stone building, two stories on one end and four stories on the other end—two on street and four on canal.

7 Q. After the Baileys removed from this one-story wooden building, where did they carry on business next?

A. They moved into the shop formerly occupied by the Ni-
370 agara Manufacturing Company, a stone building about 150 feet easterly of Trevor's building, on Market street—same side of street.

8 Q. About when was this removal?

A. 1871, I think.

9 Q. Where did you do business during the time that T. R. Bailey's Sons occupied the wooden building between the Trevor stone building and the stone building formerly occupied by the Niagara Manufacturing Company?

A. The Trevor building; part of time in fourth story, part of time in the cellar, and part of time in other stories; while in fourth story was doing business for myself, while in cellar was with C. R. Penfield, and when in rest of shop was one of Trevor & Co.

10 Q. Since then have you occupied parts of the same building, and what has been the character of your manufacture?

A. Have occupied parts of same building since; manufacture were shingle, heading, and stave machinery.

11 Q. I call your attention to a hydrant here present, and ask you to state where it came from.

A. It came from the street in front of the old building formerly occupied by the Niagara Manufacturing Company; also occupied in part by T. R. Bailey & Vail. I dug it up April 10, 1884, at request of Geo. L. Roberts, counsel for defendants, and it has been in my custody ever since until sent to this office.

12 Q. Do you remember when this hydrant was first set in the place from which you dug it up, who set it there, and of whose manufacture it was?

A. I do not remember when it was set. I don't know who set it. All I know of the manufacture of it is the stamp on it—the lettering. I recollect it was set there during the time Bailey & Vail occupied part of the building. That is the best of my recollection about it.

371 13 Q. Who were present at the time the digging around the bottom of this hydrant took place preparatory to taking it out?

A. George L. Roberts, James M. Drennan, Edward J. Hill, Thos. R. Bailey, John H. Buck, John McCue, myself, and some others.

14 Q. There are two threaded holes in the bottom of the case of this hydrant, are there not?

A. I know about one of them. I have not examined the other thoroughly. I think both are threaded. I know one is. The one I have not examined is badly rusted; the other one is not nearly so badly rusted.

15 Q. What did you find in the threaded hole which is the least rusted?

A. An iron set-screw.

16 Q. Please examine the screw-bolt now shown you, and state whether you recognize it.

A. I do. It is the bolt I took out of the hydrant case. It was in the bottom of the case in one of the holes.

(Counsel for defendants puts in evidence the hydrant referred to by the witness, and the same is marked "Exhibit Bailey Hydrant;" also the set-screw referred to, and same is marked "Exhibit Bailey Hydrant Set-Screw.")

17 Q. I notice that the upper part of the iron case surrounding the hydrant proper of this "Exhibit Bailey Hydrant" is cracked. When did it become so cracked?

A. It was cracked while in my possession. It was standing up near side of shop, and a teamster came in and carelessly threw something against it, and it fell over and was cracked.

372 18 Q. How long have you known Thomas R. Bailey, who was Thomas R. Bailey, Jr., in 1865?

A. I think since 1860.

19 Q. Did you ever during all the time he lived and did business in Lockport hear him claim, or know of his claiming, to be the inventor of anything pertaining to the frost-case of a hydrant?

(Objected to as leading and incompetent.)

A. I did not.

20 Q. Did you ever know of his claiming during that time to be the inventor of anything else pertaining to a hydrant; and, if so, what?

(Same objection.)

A. He claimed to be the inventor of a valve to a hydrant.

21 Q. What kind of a valve?

A. What is called a ring-valve, or a cylinder-valve.

22 Q. Did you ever know of his testing the working of such a valve; and, if so, in what kind of a contrivance?

(Same objection.)

A. The best of my recollection is, it was in a small hydrant; said to be in a small hydrant in the cellar of the Trevor building, on the water-pipe carrying the water to the water-wheel; I never saw the valve in that hydrant.

23 Q. About what was the height of this small hydrant which was said to contain Bailey's cylinder-valve?

A. About 2 feet or 2½ feet high.

24 Q. Did that hydrant have any case on it or around it?

(Objected to as leading and incompetent.)

373 A. To the best of my recollection, it had not.

25 Q. Are you able to give the date or approximately fix the time when you saw this small hydrant?

A. How nearly? No, I can't; I think it was between 1865 and 1871; that's as near as I could guess at it.

WILLIAM W. TREVOR.

RICHARD H. BUTTON, a witness produced and sworn on behalf of the defendants, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. Richard H. Button; 37 years old; residence, Lockport; am a machinist.

2 Q. Where did you learn your trade of machinist?

A. I commenced with Race & Mathews, in Lockport, 1862.

2 Q. How long did you continue to work for Race & Mathews, or Race, Mathews & Co., or Niagara Manufacturing Company?

A. From 1862 until fall of 1867.

4 Q. By whom were you next employed, and for how long?

A. I then worked for Dr. Chase for about seven months, making patent locks.

5 Q. By whom were you next employed, and when?

A. T. R. Bailey's Sons; I think it was in the spring of 1868.

6 Q. How long did you continue in the employ of T. R. Bailey's Sons?

A. I think it was until 1871, or along there; won't be certain whether it was 1870 or 1871.

7 Q. And then by whom were you employed, and for how long?

374 A. Bailey & Vail; from that time until 1876.

8 Q. In what shop did T. R. Bailey's Sons carry on business, and in what building did Bailey & Vail?

A. T. R. Bailey's Sons occupied a wooden story-and-one-half building in rear or a little one side of the Trevor building, on Market street; Bailey & Vail occupied same building about a year, I should think, and moved from there into building formerly occupied by Niagara Manufacturing Company.

9 Q. How long after 1862 was it before you were working as a journeyman machinist?

A. About three years after.

10 Q. Upon what did you work from 1865 down to the fall of 1867, when you left the employ of the Niagara Manufacturing Company?

A. On hydrants and job work and some engine work.

11 Q. Did Race, Mathews & Co. have any advertising sheet or

circular containing illustrations and descriptions of any part of their work that you remember?

(Objected to as leading and incompetent, cuts or illustrations being the best evidence.)

A. Yes; I saw them in the shop; I saw them nailed up in Race's office.

12 Q. What did they represent?

(Same objection.)

A. They represent a full hydrant, and the working parts of the inside of a hydrant.

13 Q. Will you look at the sheet now shown you, marked "Exhibit Race, Mathews & Co. Lithograph," and state whether you ever saw one like it before; and, if so, when first and where?

375 A. Yes, sir; I have seen the same thing before; I saw it tacked up in Race's office, and I had one at home at one time, but don't know what has become of it; I won't be positive about the year; I think, though, somewhere in 1864 or 1865.

14 Q. How did the hydrants manufactured by Race, Mathews & Co. and by the Niagara Manufacturing Company down to 1865 compare with the hydrants shown upon this "Exhibit Race, Mathews & Co. Lithograph?"

A. Just the same.

15 Q. Did you know Jared M. Gleason during your employment by Race, Mathews & Co. and the Niagara Manufacturing Company; if so, for whom did he work and how was he employed?

A. I knew him; he worked for Race, Mathews & Co. and the Niagara Manufacturing Company. He worked some on pattern work and some iron work, and had charge of the shop at one time.

16 Q. Did you remember when Jared M. Gleason left the employ of the Niagara Manufacturing Company?

A. He left in 1867—early in the year. I don't know exactly what time.

17 Q. Do you remember seeing him do any work upon hydrant patterns; and, if so, of what kind?

(Objected to as leading and incompetent.)

A. I saw him work on hydrant patterns. I once saw him fix a case and turn off a flange from outside of a hydrant pattern.

18 Q. What was the object of this alteration of the hydrant patterns?

A. I don't know unless it was the frost heaved them; I don't know what else it was.

376 19 Q. I did not mean in the last question to inquire about the cause of this alteration, but to ask what the alteration accomplished—that is, what kind of a hydrant was made by the change? Please answer this.

A. I can show you on here (referring to "Exhibit Race & Mathews' Lithograph.") This case here (referring to the right-hand figure showing interior) goes up on the inside; he turned off the base of

the hydrant so the outside case would slip up outside instead of inside.

20 Q. When was this change in the hydrant pattern made?

A. If I recollect right, it was about 1866—about a year before Gleason left there.

21 Q. Were hydrants made from these altered patterns before you left the employ of the Niagara Manufacturing Company; and, if so, how long before, as well as you remember?

A. Yes, sir; hydrants were made from those patterns just as soon as the patterns were changed over.

22 Q. Please look at the hydrant here, marked "Exhibit Race & Mathews' Hydrant," and state how it compares with the hydrants made from the altered patterns of which you have spoken.

A. It corresponds the same.

23 Q. Do you remember seeing the address of any of these hydrants like "Exhibit Race & Mathews' Hydrant" marked upon any of them ready to be shipped; and, if so, what do you remember and when was it?

(Objected to as leading.)

A. I can't tell the time. I have seen them marked Auburn, Rochester, Jersey City. I have seen some shipped to New York.

377 24 Q. I referred in my last question to the hydrants made from the altered patterns and like this hydrant here on the floor, "Exhibit Race & Mathews' Hydrant," and I did not refer to any other style of Race & Mathews hydrant. Did you so understand when you answered the last preceding question?

(Objected to as improper and incompetent.)

A. I think I saw hydrants like this one shipped to Jersey City, I think some of the first they made; this one was made by the Niagara Manufacturing Company (referring to "Exhibit Race & Mathews' Hydrant").

25 Q. When I asked you interrogatory 23, which the examiner will now read, did you think I referred to the hydrants made by Race, Mathews & Co.?

A. All were made by Race Mathews & Co., but the firm was then Niagara Manufacturing Company.

MAY 28, 1884.

RICHARD H. BUTTON continued.

26 Q. After you left the employ of Niagara Manufacturing Company, in the fall of 1867, did you know of any of the new style hydrants—like this, "Exhibit Race & Mathews' Hydrant"—being set in the city of Lockport; and, if so, where first?

A. I think there is one in front of Wright's bookstore.

27 Q. Mention the next place in Lockport you remember such hydrants were set.

A. On East avenue.

28 Q. Do you remember the Buffalo street water-pipe extension?

A. I remember an extension having been put down there.

378 29 Q. Do you remember where you were working at the time?

A. I think I was working for Chase at the time.

30 Q. Do you remember what kind of hydrants were set on Buffalo street at the time last mentioned?

A. I think I do; this kind here; this is all the kind they were making at that time (referring to "Exhibit Race & Mathews' Hydrant").

31 Q. Were the hydrants set on East avenue before or after the Buffalo-street water-pipe extension mentioned?

A. After.

32 Q. After you went to work for T. R. Bailey's Sons were any hydrants manufactured there?

A. There were hydrants manufactured there, but I don't remember whether by T. R. Bailey's Sons or by Bailey & Vail; I think it was Bailey & Vail.

33 Q. How many such Bailey hydrants were manufactured after you went to work for T. R. Bailey's Sons, as well as you remember?

A. Five or six.

34 Q. What was done with them?

A. They were brought up on East avenue; they were made for Fleming, on East-avenue extension. I understood at the time that Mr. Mathews threatened to sue the city if the hydrants were put in, and consequently they did not go in, and they were put up on the curbstone, where they stayed about a year, and were carted back to the shop again and laid about there two or three years; after that they were broken up and melted up again, all but one, which was set up in front of the shop formerly occupied by the Niagara Manufacturing Company, and that is the hydrant here now, marked "Exhibit Bailey Hydrant."

379 35 Q. Did you see this hydrant—"Exhibit Bailey Hydrant"—when I had it dug down, about preparatory to taking it out, on the 10th of April last?

A. Yes, sir.

36 Q. Did you have anything to do with setting this hydrant originally in the place where it was dug up?

A. I helped set it.

37 Q. Was it in the same condition, or in any different condition, when it was dug up last April from what it was when it was originally set there?

A. I don't think it was; I mean it was the very same hydrant that was set; it was in the same condition when set as when dug up.

38 Q. What do you know about the holes in the bottom of the case of this hydrant, and of the set-screw in one of them, at the time it was dug up?

A. I remember they drilled some holes in and tapped them, and put set-screws in.

39 Q. When and where was this done?

A. In Bailey & Vail's shop—the old shop back of Trevor's, before they went up on East avenue.

40 Q. During the time of your employment by the Niagara Man-

ufacturing Company, in 1866 and 1867, did you ever see Thomas R. Bailey, who was then Thomas R. Bailey, Jr., in and around the shop of that company?

(Objected to as immaterial.)

A. I have often seen him go through the shop.

41 Q. Was there any difficulty in seeing what hydrant work went on in that shop during those years to any one going through the shop, as you say you often saw Mr. Bailey do?

(Objected to as leading and immaterial.)

380 A. The works were there in the shop, and any one could see it that wanted to; it was all exposed to view.

42 Q. Did you ever, during your employment by the Niagara Manufacturing Company, or afterwards down to the time you ceased to work for Bailey & Vail, ever hear Mr. Thomas R. Bailey, then Thomas R. Bailey, Jr., claim to be the inventor of a detached case or a hydrant, or a loose frost-case having end play, or know of his claiming to be such inventor?

(Objected to as leading, improper, and immaterial.)

A. Not that I know of.

43 Q. What work, if any, did you do upon the new-style hydrants like this ("Exhibit Race & Mathews Hydrant") in 1867, before you left the employ of the Niagara Manufacturing Company?

A. I used to pack them; put them together ready for shipping.

RICHARD H. BUTTON.

JOHN MCCUE, recalled by defendants as a witness in their behalf, testified as follows:

1 Q. What is your name, and have you before testified in this case?

A. John McCue; I have; I suppose it is the same case.

2 Q. Look at the lithograph now shown you, marked "Exhibit Race, Mathews & Co. Lithograph," and state whether you ever saw a copy of the same before, and how early?

A. I think I have seen this or one similar; I saw one that used to hang up in Race & Mathews' office when they were in the building where I used to work; that was in the old Holly building,

381 before they moved over into the other building afterwards occupied by the Niagara Manufacturing Company.

3 Q. Have you, since your previous examination in this case, dug down around the hydrant in the yard of the late William G. McMasters, on Pine street, in Lockport, and examined the frost-case? If so, state how that hydrant compares in construction with the hydrant illustrated upon "Exhibit Race, Mathews & Co. Lithograph," and also how much end play you found the frost-case on that McMaster hydrant to have.

A. I did dig down to the bottom of the hydrant in the McMaster yard; I found that the frost-case played one and one-half inches; I think it was a *fac-simile* of this lithograph here.

4 Q. You say that you found that the frost-case played one and one-half inches; state just what you mean by that.

A. When I dug down to the hydrant I found the frost-case up a little toward the rim; I got down into the ditch, a laboring man with me, took hold of the frost-case and worked it up and down on the body of hydrant, and found an end play of one and one-half inches.

5 Q. Please look at the "Exhibit Bailey Hydrant" and state whether you recognize it as the same hydrant about which you have testified in your former examination, and which you saw dug up or dug round about preparatory to being taken up in front of the stone building on Market street, formerly occupied by the Niagara Manufacturing Company, in April last.

A. I think that is the same hydrant.

6 Q. You referred in your former testimony to the putting in of set-screws into the Bailey hydrants made for the Fleming
382 contract. Did you ever have any conversation with Thomas R. Bailey about that time relative to putting in such set-screws, or to any advice which had been given him about the matter? If so, state what he said to you.

A. I remember Mr. Bailey and myself talking about the set-screw matter; he told me Birdsill Holly advised him to put in a set-screw.

(Last question and answer objected to as immaterial.)

7 Q. In your former deposition you said in substance that you didn't think the set-screw amounted to much; just what did you mean?

A. I mean there isn't strength enough in the set-screw to hold against the frost pulling on the case; I now refer to the set-screw that I saw.

JOHN McCUE.

383 Testimony on behalf of the defendants, before William S. Beaman, special examiner, under the 67th rule, in equity, as amended.

ROCHESTER, N. Y., *May* 29, 1884.

Present: Edward J. Hill, for complainants; George L. Roberts, for defendants.

RUFUS F. OSGOOD, a witness on behalf of the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Rufus F. Osgood; age, 52; residence, Lockport, N. Y.; am a solicitor of patents.

2 Q. How long have you been a solicitor of patents, and in connection with whom?

A. Since 1856; at first as a clerk in the office of J. S. Brown, Washington, D. C., and from 1862 to 1872 in connection with Jefferson Fraser, under the firm name of J. Fraser & Co., and also in

connection with Jefferson Fraser and Edmund Burke, under the firm name of Burke, Fraser & Osgood; since that time alone.

3 Q. Where did you have your branch office during the time you were doing business in connection with Messrs. Fraser & Burke?

A. I had charge of the office in Rochester, N. Y.

4 Q. I show you a certified copy of letters patent No. 96959, dated November 16, 1869, and granted to Washburn Race and S. R. C. Mathews, for improvements in hydrants. Will you please examine the same, and especially the photo-lithographic copy of the
384 signatures of the attorneys for the inventors upon the drawings, and state if you know by whom the application for that patent was prepared.

A. The specification was drawn by myself, and the signatures of attorneys on the drawings were made by myself.

5 Q. Do you remember that on December 17, 1868, a rejection was declared against this application on reference to the model belonging to T. R. Bailey, Jr.'s, patent of March 10, 1868?

A. I do; I recollect all except the date given.

6 Q. What action do you remember to have been taken on behalf of the applicants in order to obtain the allowance of that Race & Mathews patent?

A. I recollect after the rejection was given that Mr. Mathews came to my office and stated to me that he had manufactured for some time—that is, that he had manufactured the hydrants which that application covered. I advised him at that time to obtain the affidavits of some disinterested parties, who knew of such manufacture, if the manufacture extended back beyond the date of Bailey's patent, and that we could use such affidavits to present to the examiner in charge of that case, and I thought that under those circumstances we could obtain the patent. Such affidavits were made and presented to me, and I forwarded the same to my agent in Washington, John A. Wiedersheim. The same were presented by him, as I ascertained by his letters, and upon the strength of those affidavits the patent was allowed on the case in question.

(Answer objected to on the ground that the affidavits and the letters referred to are the best evidence, and that the witness is not competent to testify as to what Mr. Mathews said, as well as
385 what Mr. Wiedersheim did, unless he was present; also that the records of the Patent Office are the best evidence as to what was done in the case.)

7 Q. Have you here present any original memoranda made by you at the time which enables you to state the dates when the affidavits referred to were prepared and forwarded, and the fact of their being so prepared and forwarded?

A. I have two letters here, written by myself and sent to Mr. Mathews, one dated August 31, 1869, the other dated October 21, 1869, and by means of those letters I am enabled to fix pretty nearly the date when the affidavits were made. They were made about the time of the date of the first letter or during the month of Septem-

ber; they were forwarded to Washington, I think, about the 5th of October, 1869.

(Counsel for defendants puts the two letters referred to in evidence, and the same are marked "Exhibit Osgood Letter of August 31, 1869," and "Exhibit Osgood Letter of October 21, 1869," W. S. B., Spec. Ex.)

(The said letters are objected to by counsel for complainants as immaterial and incompetent.)

8 Q. Have you ever seen those affidavits since you so forwarded them to Washington, or do you personally know where they are, or whether they are in existence?

A. I have not seen them, and do not know where they are, nor whether they are in existence.

9 Q. Do you remember the name of any one of the persons who made and swore to one of those affidavits? And, if so, state it, and how you happen to remember it?

386 A. I remember the name of one, and only one, that was A. H. Goss; I remember it because an affidavit by him was first sent to me, and was defective in some respect; I rewrote it and forwarded it to him for qualification.

10 Q. When was this, and where did this Mr. A. H. Goss then live?

A. It was September 11, 1869; I think he lived in Auburn, New York, but I am not sure.

11 Q. How many affidavits do you remember to have been prepared and sent in all?

A. I cannot state positively; but I think there were three.

12 Q. You have mentioned the 5th of October, 1869, as the date when they were forwarded to Washington; if you have any original memorandum relating to this subject, please state what it is, and read it as part of this answer.

A. I have a press copy of a letter which I wrote on that date, and which mentions the enclosing of those affidavits. The letter was sent to John A. Wiedersheim, my correspondent in Washington. The letter is as follows:

(Complainants' counsel objects to the copy, the original being the best evidence.)

"OCTOBER 5, 1869.

"DEAR SIR: We applied for patent some time since for Race & Mathews on hydrant in which the outer case or jacket B has a verticle movement to compensate for the heaving of the frost. It was refused on T. R. Bailey's patent. Bailey lives in the same town, and took his pattern from Race & Mathews' manufactured articles. He does not claim or show the end movement in his papers or drawings, but only in his model. In view of this accidental

387 exhibition, we claim that we ought to have the patent without interference, especially as Race & Mathews have an older patent showing the loose case, but no end movement. Please

present case to the examiner again and urge these reasons, at the same time presenting the accompanying affidavits. If he will not then grant patent request an interference with Bailey, and we will take evidence.

"How does Keech's case of extension come on? It is time a decision were given, as the patent will expire in a little more than a week.

"Very truly, R. F. OSGOOD.

"J. A. W., Esq."

13 Q. Do you know where the original of this letter is or whether it is in existence?

A. I do not.

Cross-examined by Mr. Hill:

14 C. Q. How long have you known Mr. Samuel R. C. Mathews?

A. I think my first acquaintance with him was about the time of the application for the hydrant patent referred to.

15 C. Q. Which hydrant patent—the one of 1869 or the older one referred to?

A. The one of 1869.

16 C. Q. Where did he then reside?

A. At Lockport, New York.

17 C. Q. You knew Washburn Race, of the same place, did you not?

A. I think not; I have no recollection of having met Mr. Race.

18 C. Q. All the business was done, then, in the matter, so far as the patentees were concerned, between your office and Mr. Mathews?

388 A. I think so.

19 C. Q. Is the copy of the letter contained in this your deposition a true and correct copy of the letter which you sent to Mr. J. A. Wiedersheim of that date; if so, did you send it at the request of Mr. Mathews?

A. I think it is a correct copy. I sent it in the usual course of business in conducting Mr. Mathews' case, but I don't know as he made a special request that I should send that letter.

20 C. Q. Who else besides Mr. Goss made affidavit?

A. That I cannot say. I cannot recollect the names of the parties.

21 C. Q. Mr. Mathews made an affidavit, did he not?

A. My recollection is not positive: I think he did, however.

22 C. Q. Do you remember receiving notice of the rejection?

A. I think I do.

23 C. Q. What occasioned the delay from the receipt of notice of the rejection until August or September, 1869?

A. That I cannot tell you.

24 C. Q. What was the general purport of Mr. Goss' affidavit as near as you can now remember?

A. My recollection is not sufficiently clear to state the contents of

any of those affidavits; I only recollect that the general purport was that those hydrants had been manufactured for some considerable time, but how long I cannot say?

25 C. Q. Is not this letter of yours (referring to "Defendants' Exhibit Osgood Letter of August 31, 1869") mostly in regard to those affidavits?

A. I think it is.

26 C. Q. Were not the affidavits, respectively, limited as suggested in the aforesaid letter?

389 A. That I cannot state from recollection.

27 C. Q. In the other letter (referring to "Defendants' Exhibit Osgood Letter of October 21, 1869") you state that "those affidavits fixed it." By "those affidavits" you referred to the affidavits which were prepared under the suggestion in your former letter of August 31, aforesaid, did you not?

A. Yes, sir; those are the ones.

28 C. Q. What did they fix?

A. What I meant was that they had enabled us to get an allowance of the patent.

29 C. Q. Without an interference?

A. Yes; not only that, but over the general rejection in the case.

30 C. Q. Was the specification or application in any way altered, changed, or amended?

A. I cannot state positively, but I think not.

31 C. Q. Your only means of information were the correspondence between you and Mr. Wiedersheim as to what was done with the affidavits, and in the case generally, based upon the aforesaid affidavits, were they not?

A. Yes, sir; that is the fact.

32 C. Q. Will you please produce the original letters which you received from Mr. Wiedersheim relating to this matter?

A. I think there were only two letters relating to this subject; I produce one of them; it is dated October 8, 1869, and contains the following: "Your favor of 5th is received. Race & Mathews will receive attention as per your instruction," which is all in this letter relating to this matter. I have another letter, which I will produce, which enclosed, I think, notice of allowance of the patent.

390 33 C. Q. The letter of October 5 referred to by Mr. Wiedersheim is the one a copy of which you have already given, is it not?

A. Yes, sir.

34 C. Q. Have you any letters from Mr. S. R. C. Mathews relating to these affidavits or to the application in any way?

A. I cannot say.

35 C. Q. Have you copies of other letters written by you to him relating to the same?

A. I have. I think one relates to the affidavits; the others to the application.

36 C. Q. Will you please produce them?

A. I produce a copy of a letter dated August 26, 1869. It is as follows (Mr. Mathews now hands me the original, which I produce):

(Witness produces a letter, which is offered in evidence by counsel for complainants and marked "Complainants' Exhibit Osgood Letter of August 26, 1869, W. S. B., Spec. Ex'r.)

37 C. Q. Where is Mr. J. A. Wiedersheim now?

A. In Philadelphia, I suppose, a solicitor of patents.

38 C. Q. You have handed me four letters each signed "J. A. W." Who is "J. A. W.?"

A. John A. Wiedersheim, the person to whom I have referred.

39 C. Q. And these letters were signed by him, respectively, and received by your firm of Burke, Fraser & Osgood in due course of business according to their several dates, were they not.

A. Yes, sir.

(Complainants' counsel offers the same in evidence, marked "Exhibits Wiedersheim Letters, Nos. 1, 2, 3, and 4, respectively,
391 W. S. B., Spec. Ex'r." Counsel for defendants objects to the introduction of these letters as unnecessarily encumbering the record with immaterial and irrelevant matter, and requests counsel for complainants to let the witness state what is in the letters relating to Race & Mathews' application if he thinks it of any importance.)

40 C. Q. You have produced six letters from S. R. C. Mathews to Burke, Fraser & Osgood, dated, respectively, July 23, 1869; August 14, 1869; August 23, 1869; August 27, 1869; October 27, 1869; October 29, 1869. Are these all the letters which you received from Mr. Mathews between those dates, viz., July 23, 1869, and October 29, 1869?

A. I think they are; they are all I can find in my files.

(Complainants' counsel offers the same in evidence, and they are marked, respectively, "Exhibits Mathews-Osgood Letters, Nos. 1, 2, 3, 4, 5, 6.")

41 C. Q. You have no personal knowledge relative to the proceedings at the Patent Office relative to this patent, No. 96959, and the application therefor other than that derived from the letters received by your firm from Mr. J. A. Wiedersheim, have you?

A. Yes, I think I have. I think the application was first made direct to the office, and that the rejection was given before the case went into the hands of Mr. Wiedersheim. I do not state this from a clear recollection of the subject, but from the tenor of my letter of October 5, 1869.

42 C. Q. Then prior to your letter of October 5, 1869, Mr. J. A. Wiedersheim had no connection with the application for the aforesaid patent?

A. I think that is the case.

392 43 C. Q. And from that time, then, your knowledge of what took place in the Patent Office relative to such application is derived solely from the letters received from Mr. J. A. Wiedersheim, which you have produced?

A. I think that is the case.

Redirect:

44 Re-D. Q. During the time that such application was pending for the Race & Mathews' patent No. 96959 did you have any personal knowledge of the construction or condition of the model belonging to the patent of T. R. Bailey, Jr., of March 10, 1868, or did you have any information in regard to the same, except such as was conveyed by the examiner's rejection?

A. No, sir.

RUFUS F. OSGOOD.

393 ROCHESTER, N. Y., *May* 29, 1884.

ISAAC S. HOBBIE, a witness in behalf of the defendants, being duly sworn, says, in answer to interrogatories by Mr. ROBERTS:

1 Q. What is your name, age, residence, and occupation?

A. Isaac S. Hobbie; age, 63—will be 64 July 19th; residence, Tonawanda, N. Y.; manufacturer of water and gas pipe.

2 Q. Did you ever reside in Elmira, N. Y.; and, if so, what business did you there carry on?

A. I resided in Elmira from 1865 to 1878. I was manufacturing water and gas pipe, and managing the Elmira water-works a part of the time—the first two or three years.

3 Q. Did you, during this time of the managing of the Elmira water-works, purchase any hydrants of the Niagara Manufacturing Company of Lockport, N. Y., of which Washburn Race and S. R. C. Mathews were principal managers; if so, when was the first purchase made?

A. I purchased four or five, I think, during the spring of 1867. The first one was received, I think, in March, 1867.

4 Q. Do you call to mind any circumstances which guide you in fixing this date? If so, state them.

A. On December 24, 1866, our office (the water company's office) was destroyed by a large fire on Lake street. I remember the date from the circumstance that our family had arranged to visit Rochester on the next day, Christmas, and the children anxiously in-
394 quired if I could go, and I said, "Of course, for I had nothing else to do." This facetious remark fixes the circumstance of the date. I was burned out, and had nothing else to do. During the raging of the fire I met the proprietor of another building not burned, and rented his room for another office, to be occupied on the 1st of January. This room was in the second story, and, in assisting to carry upstairs the first hydrant received some weeks afterward, I injured my finger. This circumstance enables me to fix that it was in the spring of that year. We were in that office but a little time.

5 Q. Where was that hydrant set?

A. On the corner of Lake and Market streets, Elmira.

6 Q. What were the former names of those streets?

A. I think Market street used to be called Cross street.

7 Q. Do you remember to have given a deposition nearly eight years ago, in the city of New York, in the case of S. R. C. Mathews

et al. vs. The Boston Machine Co. *et al.*, then pending in the circuit court of the United States for the district of Massachusetts?

A. I do.

8 Q. In that deposition you referred to an original day-book kept kept by yourself; is that day-book now in existence?

A. I cannot find it. I looked as thoroughly as I thought necessary through all the books and papers that I have and it is among them.

9 Q. Has there been any occasion or cause for its loss during this interval of eight years?

A. I know of no cause for preserving it. I have moved my office three times since and my house twice, and the book was a small one, which I kept as a sort of blotter, and was not regarded
395 as of material consequence, as the important items were transferred to the other books by the book-keeper.

(Counsel for defendants puts in evidence a certified copy of the deposition of Isaac S. Hobbie in the cause of Mathews *et al. vs.* The Boston Machine Co. *et al.*, in the circuit court of the United States for the district of Massachusetts, and the same is marked "Defendants' Exhibit Isaac S. Hobbie's Former Deposition, W. S. B., Spec. Ex'r.")

(By Mr. HILL: To which I object as incompetent.)

10 Q. Will you look at the copy of the entry from that day-book, contained in answer to interrogatory 4 of your former deposition, and state whether it is correct, to the best of your recollection.

(Complainants' counsel objects as incompetent.)

A. It is.

11 Q. To what hydrant does that entry refer and what do the items of the entry mean, severally?

A. It refers to the hydrant that was first received from Race & Mathews; the first item means the amount paid the railroad company for freight from Lockport, N. Y., to Elmira, $2.37; the second means the amount of cartage paid from the Elmira depot to our office in Elmira, 60 cents.

12 Q. Refreshing your recollection from these entries, are you able to assign the exact date on which that hydrant was received?

A. I am; it was received on March 7, 1867.

13 Q. At the time that you gave your former deposition referred to, where was that hydrant?

A. In the city of New York, at the place where I was giving my testimony.

14 Q. Have you read this certified copy of your former
396 deposition? If not, please now do so, and state whether it agrees entirely with your present recollection of the facts therein stated.

A. I have just read it, and it agrees with my recollection.

15 Q. I will call your attention to the fact that you have testified in this deposition that the hydrant was set on the corner of Lake

and Market (formerly Cross) streets, and that in your former deposition you say it was set on the corner of Water and Cross (now Market) streets; which is correct?

A. It should be Lake street; Water and Cross streets don't intersect, they run parallel.

16 Q. How near to your office was this first hydrant set? I mean the one you occupied after the temporary upstairs office referred to?

A. I should say it was about three hundred feet—just round the corner.

17 Q. Have you to-day, in company with the examiner, Wm. S. Beaman, examined the hydrant in his custody at the office of the American Express Company, in Rochester, N. Y., and marked "Exhibit Race & Mathews' Hydrant?"

A. I have.

18 Q. How does this "Exhibit Race & Mathews' Hydrant" compare in construction with the hydrant which you received at Elmira, March 7, 1867, as testified by you?

A. It appears to be exactly similar.

19 Q. If there is any difference which you noticed in any part of this exhibit, as compared with the Elmira hydrant of March 7, 1867, please state it.

A. The only difference I can see is in the shape of what we call the "bell" on the end of the elbow which receives the branch running from the main to the hydrant.

Adjourned to May 30, 1884.

397 MAY 30, 1884.

Continuation of the examination of the witness ISAAC S. HOBBIE by Mr. ROBERTS.

20 Q. Did you ever purchase of the Niagara Manufacturing Company or of Race & Mathews any other style of hydrant than that of which you have testified?

A. No, sir. I meant to have added yesterday in answer to the question as to the similarity of the "Exhibit Race & Mathews Hydrant" with the one mentioned in my former testimony the words "I think it was cast from the same pattern."

Cross-examined by Mr. HILL:

21 C. Q. How long did you reside in Elmira, N. Y.?

A. From 1865 to 1878.

22 C. Q. What was your business in 1865 in Elmira?

A. I was managing the Elmira water-works.

23 C. Q. What were the Elmira water-works at that time—a separate corporation from the city or a corporation auxiliary?

A. They were a separate corporation.

24 C. Q. What kind or system of works were in use?

A. The gravity system.

25 C. Q. What hydrants—that is, whose manufacture, were in general use in Elmira from 1865 to 1867?

A. The Ketchum hydrant, made in Buffalo by A. R. Ketchum.

26 C. Q. Then the first hydrants, other than the Ketchum hydrants which you purchased for the Elmira Water Company were the four or five hydrants concerning which you have testified?

A. I think so.

27 C. Q. Please examine the lithograph now shown you, carefully (referring to "Exhibit Race, Mathews & Co. Lithograph") and state whether or not you have seen hydrants of that construction in use in the city of Elmira, N. Y.

398

A. I have.

28 C. Q. Have you any means of stating or telling when or about when such were purchased and set?

A. This lithograph was shown to us as the pattern of the hydrant they wished to sell us, and we were induced to purchase the hydrants from this description.

29 C. Q. Where is Arkalous Wyckoff now?

A. He resides in Elmira, N. Y.

30 C. Q. General Swan?

A. He is dead.

31 C. Q. What part did Mr. Wyckoff take in the operation and management of the Elmira water-works from 1865 to 1869?

A. No part.

32 C. Q. Where are the principal books of account of the Elmira Water Company?

A. I do not know. Not long after the purchase of these four or five hydrants I sold my interest in the Elmira Water Company to George M. Diven, of Elmira, N. Y.

33 C. Q. In this transfer to Mr. Diven, these general books of account, papers, vouchers, etc., were transferred to Mr. Diven, were they not?

A. I do not know to what extent.

34 C. Q. There appears in this entry of March 7, 1867, the following: "To cash paid freight on hydrant, $2.37." You gave your testimony in New York before Mr. Blaikie, special examiner, upwards of nine years intervening. How could you connect that item with the hydrant which was dug up and concerning which you then testified?

399

A. There was no other circumstance that occurred during the time similar or with which I could connect it. I found this entry on the original day-book kept by myself, and it could not refer to any other transaction.

35 C. Q. Were not hydrants from time to time, during the years 1867 and 1868, purchased by you for the water-works at Elmira, other than those from the Niagara Manufacturing Company or Race & Mathews?

A. I think not.

36 C. Q. Do you know what the freight at that time was on hydrants from Lockport, N. Y., to Elmira?

A. I do not, except from this entry?

37 C. Q. How many hydrants, as near as you can now remember, did you purchase for the Elmira water-works of Race & Mathews, Race, Mathews & Co., and the Niagara Manufacturing Company?

A. Four or five.

38 C. Q. With whom did you negotiate for these?

A. Mr. Mathews.

39 C. Q. Where?

A. At the office of the water company in Elmira.

40 C. Q. Had you ever met him before this time?

A. I think not.

41 C. Q. Do you know how long he was in Elmira at this time negotiating with you in regard to these hydrants?

A. I do not remember.

42 C. Q. You say that your son kept this book concerning which you have testified, did you not?

A. Yes, sir.

43 C. Q. Then he made those original entries in the book, did he not?

A. I made the original entry.

44 C. Q. Then you kept the book, did you not?

400 A. I made that entry.

45 C Q. How do you know that fact now, in the absence of the book?

A. I only know it from my former testimony.

46 C. Q. How is it with regard to the other facts concerning which you have testified as to your remembrance of the same?

A. My memory is refreshed by recalling all the circumstances of the case, assisted by this former testimony and such facts bearing upon the circumstances which I found in books kept by my son and myself relating to the whole business while I was recently searching for this original entry. The whole transaction had nearly passed from my memory until recalled by a letter from Mr. Mathews some five or six days ago, asking me if I had that original book and could refer to it.

47 C. Q. Are you positive that the fire of which you have spoken took place in December 24, 1866?

A. I don't see how I can be mistaken.

48 C. Q. You have stated that it was a large fire; please describe it somewhat in detail.

(Objected to as immaterial.)

A. At that time a fire broke out about eleven o'clock in the evening in a wooden building on the east side of Lake street, one or two doors south of the hardware store of Ayrault, Rose & Co., who occupied a double store, with the exception of the front of the most northerly one, which I occupied for my office and plumbing works. The fire destroyed the entire row of buildings from the northern wall of our office to the southern extent of the square, or Water street, some four or five hundred freet, and two or three large buildings on the west side of Lake street.

401 49 C. Q. Had you insurance on your stock and fixtures?

(Same objection.)

A. I had.

50 C. Q. In what company?

(Same objection,)

A. London and Liverpool.

51 C. Q. In what agency?

(Same objection.)

A. Swan's agency, of Elmira.

52 C. Q. You made proofs of loss, did you not, and collected the insurance money?

(Same objection.)

A. I did.

53 C. Q. Who set those hydrants which you purchased of Race & Mathews?

A. I think the foreman's name was James Petrie.

54 C. Q. Where does he now reside, if living?

A. The last I heard from him, some seven or eight years ago, he was in Chicago.

55 C. Q. What was his business?

A. I do not know.

56 C. Q. After the lapse of upwards of nine years, how do you remember where the first hydrant purchased of the Niagara Manufacturing Company was set?

A. The first hydrant purchased was purchased some time before the others, and we needed one particularly for that point to accommodate the street-sprinkler, the man who sprinkled the streets, who was anxious to have a hydrant at some point in that neighborhood where he would not interfere with the business on the street,
402 and the point where this was set was in front of a vacant corner lot, and was set at this point and at this time for his accommodation, and to make the most severe test possible for a hydrant to be submitted to from its constant use to enable us to judge of its merits with reference to future purchases. This is the best of my recollection.

57 C. Q. You purchased this hydrant of Mr. Mathews, did you?

A. Yes, sir.

58 C. Q. The bill of purchase for the same was sent to you by the Niagara Manufacturing Company separate from the others?

A. I do not remember. My impression is that this hydrant was offered as a sample, and the payment for it was to be contingent upon its giving satisfaction, so that we should purchase more, and to be paid for with other and future purchases.

59 C. Q. The date of the payment for this hydrant would, in the usual course of business, make its appearance in the Elmira Water Company, would it not?

A. It would.

60 C. Q. Do you not remember that in March, 1867, you received a hydrant from Buffalo?

A. I do not; it is possible.

61 C. Q. And it is possible that this entry concerning which you have testified had reference to that one, is it not?

A. No, sir; I do not think and am quite sure that I did not purchase or receive a hydrant from Buffalo during the time that I had entire control of the works.

62 C. Q. Was Mr. Mathews at Elmira about the time the hydrant concerning which you have testified was taken up?

A. I think he was.

403 63 C. Q. You testified in June, 1876, in New York, as follows: "At the request of S. R. C. Mathews, some two years ago, I put a private mark on it with a cold chisel, with which to identify it." Where was Mr. Mathews when he made this request?

A. At my office in Elmira. I know he was there when he asked me to mark it, but do not know that he was there when it was taken up.

64 C. Q. Designate the localities, respectively, where the others of these four or five hydrants purchased of the Niagara Manufacturing Company for the Elmira water-works were set.

A. I do not distinctly remember.

65 C. Q. Do you remember what conversation you had with Mr. Mathews, at the time he requested you to put a private mark on the hydrant, as to the reason of your so doing?

A. Oh, no, sir.

66 C. Q. Then you do not know why he asked you to do this?

A. I think I know why, but I don't remember the conversation. He made me understand that it was for the purpose of identification in an expected lawsuit.

67 C. Q. I think you testified yesterday that this small book, which you say you cannot find, was kept by your son. How is that?

A. It was a sort of blotter, in which I entered sometimes myself and sometimes directed him to, lying on the desk outside the railing, and so the entries would appear some of them in his handwriting and some in mine. This was in mine.

68 C. Q. How do you know at this date that these entries were made in your handwriting?

A. I only know it from examining my former testimony,

404 corroborated by the testimony of my son, who quite distinctly remembers now and clearly explains to me the reasons why we cannot find the book, and describes the book and the surrounding circumstances relating to this entry more clearly than I am able to do.

69 C. Q. Where is your son and what is his name?

A. His name is John A. Hobbie; he resides in Tonawanda, N. Y.

70 C. Q. When did you have a conversation with him in regard to the matter?

A. Three or four days ago; he helped me search for this book.

71 C. Q. He was engaged with you in business at Elmira at the time of the transaction?

A. Yes, sir.

72 C. Q. Will you swear positively that this book is lost?

A. I cannot find it.

73 C. Q. Is it not possible that by making further search you may be able to find it?

A. It is possible, but I think very improbable.

74 C. Q. In June, 1876, you testified in New York before Mr. Blaikie as follows: "I have in my hand the original day-book kept by myself." Now, is it not possible that the book concerning which you then testified was a different book from the blotter concerning which you have to-day testified?

A. I refer to the same book, whether you call it blotter or day-book, and when I said "kept by myself" I meant that this entry was made by me, and did not mean that I kept the entire book.

75 C. Q. Then what you testified to in New York eight years ago you desire to thus qualify, do you?

A. That is my understanding of it.

405 76 C. Q. I understood you to say that the entries made in this original book of entry, however the same might have been kept, were in the usual course of business transferred to the general books of account of the company. Am I correct?

A. They were. I wish to say that this book was designed to contain all the transactions of paying and receiving money by myself in the course of my business, whether relating to the Elmira Water Company and its management or the plumbing department, which was separate from the company as a corporation, or to my own private or domestic affairs, and would therefore show all my financial transactions outside of the office, but not necessarily the business transacted in the office, where my son could make the entries without such intervening book.

77 C. Q. Then this was quite an important book in your business at that time, was it not?

A. It was.

78 C. Q. Your son was general book-keeper—that is, John A. Hobbie?

A. Yes.

79 C. Q. I understand you to say, then, that your remembrance of these matters concerning this book depends largely upon the information which you have within a few days received from your son, John A. Hobbie. How is this?

A. I mean to say that the conversation with him and his recollection of the occurrences so refresh my memory that I am able to recall the facts in the case, as we both remember to have had our attention called to the facts when we examined the book previous to my testimony in New York.

406 80 C. Q. Then your recollection now is based upon what you remember in 1876 rather than upon a distinct recollection of your own concerning the facts at the present time?

A. To a certain extent it must be so.

Redirect:

81 Re-D. Q. When, in answer to cross-interrogatory 27, you examined the lithograph "Exhibit Race & Mathews Lithograph," did

you notice the way in which the hydrant case was shaped and fitted at its upper end?

A. I did. I am very familiar with the construction of this hydrant. I have had this lithograph or a copy of it in my office for several years, and have explained and described it and the workings of it to perhaps hundreds of persons when comparing it with other patterns of hydrants.

82 Re-D. Q. How do you understand that the top of the hydrant case shown in the lithograph is fitted to the hydrant?

A. I don't believe I can explain that in mechanical terms; I am not a mechanic——

(By Mr. HILL: I object to the explanation.)

But I will say that the top of the hydrant case is fitted to the interior surface of a bell cast upon the stock of the hydrant, which slides over the upper end of the case, enabling the hydrant case to rise and fall whenever forced up by the action of frost or lowered by being relieved from that action, thus preventing the rising of the ground by the heaving of the frost from tearing away the hydrant from the branch pipe.

83 Re-D. Q. Is your recollection of the hydrant which you examined yesterday in company with the examiner, Mr. William S. Beaman, and marked "Exhibit Race & Mathews Hydrant," such that you think the upper end of the case was fitted to the interior surface of the bell cast upon the stock of the hydrant, as shown in the lithograph?

407

(Objected to as leading and incompetent.)

A. I think it was not.

84 Re-D. Q. What was the construction of the case at its upper end of the "Exhibit Race & Mathews Hydrant" which you saw yesterday in company with the examiner, and how was it fitted to the hydrant?

(Objected to because the counsel for complainants was not present and had no opportunity of seeing the hydrant referred to in the presence of the examiner, counsel for defendants, and witness.)

A. I think it terminated in a plain manner, without any fitting; I don't know how to describe it otherwise; I think it did not go up into a bell; I am not certain.

85 Re-D. Q. Do you remember whether or not you could see the upper end of the case upon that exhibit?

A. I do not distinctly remember.

86 Re-D. Q. Will you please look at the lithograph now shown you and state whether you remember to have seen any hydrants of the construction therein illustrated by the lithographic drawings.

(Objected to as calling for new matter.)

A. I think I have never seen the inside of a hydrant of this construction. I think I have seen them setting in the streets, but have never examined them in detail.

87 Re-D. Q. I call your attention to that part of the hydrant case, shown in this lithograph last referred to, which appears above ground, and ask you to state whether you remember to have seen that construction.

408 A. I have seen it, but have not examined it.

88 Re-D. Q. Do you not remember that the hydrant which you saw yesterday in company with the examiner, marked "Exhibit Race & Mathews Hydrant," had the upper end of the case surrounding a cylindrical part of the hydrant body and sliding thereon as far as the bottom of a bead, which limited the top of such cylindrical portion of the body of the hydrant?

(Objected to.)

A. I do not remember that, sir.

89 Re-D. Q. Do you remember that the top of the case on that exhibit was in plain sight?

(Same objection.)

A. I think it was.

ISAAC S. HOBBIE.

Adjourned for recess.

ISAAC S. HOBBIE, recalled as a witness for defendants, deposes and says:

90 Q. Have you, since the adjournment for dinner to-day, considered the matter of the construction of the hydrant which was dug up at Elmira and produced in New York at the time your former deposition was taken, in June, 1876; and, if so, do you recall any circumstance which brings the construction of that hydrant clearly to mind?

A. I have, and I find that I was in error in stating that the hydrant so taken up had what I call a "bell." I distinctly remember that I placed my private mark on both the upper edge of the case and the body of the hydrant contiguous to it, directly under the outlet of the hydrant, which I could not have done had there been a bell covering it. I was led to the error by my familiarity

409 with the lithograph and seeing hydrants constructed with a bell in other places than Elmira. I now remember also very distinctly that yesterday, on examining the hydrant at the express office here, I placed my finger and showed the point on the hydrant to Mr. Mathews, which I could not have done had there been a bell on that hydrant.

91 Q. You say you placed your finger and showed the point on the hydrant to Mr. Mathews; what point do you mean?

A. The point corresponding to where I placed my private mark on the hydrant at Elmira which was taken up and was referred to in my former testimony, and of which I identify this as a duplicate.

Cross-examined:

92 C. Q. How happened you to reconsider this matter?

A. Thinking of it, I saw that I had described the hydrant that I

saw yesterday incorrectly. Mr. Roberts asked me, before adjournment this morning, to describe the construction of the hydrant shown in the lithograph. I said I was not familiar with mechanical terms, and tried to describe the lithograph. I think that my mind attempted to describe the lithograph which is the lithograph of another style of hydrant rather than the one in question.

93 C. Q. In other words, you got mixed up on lithographs, did you not?

A. Yes.

94 C. Q. How as to hydrants; were you not mixed up as to those also?

A. Perhaps I was.

95 C. Q. How did you learn these facts since adjournment?

410 A. I was perfectly clear that I had not described the hydrant and the lithograph properly at the time of adjournment.

96 C. Q. You have had a conversation both with Mr. Mathews and with Mr. Roberts in regard to this matter since adjournment, have you not?

A. I have.

97 C. Q. You saw a hydrant at the express office in this city yesterday, did you not?

A. I did.

98 C. Q. Was that the one that was dug up at Elmira?

A. It was not.

99 C. Q. How do you know that fact?

A. It had not the private mark which I put on the one which was dug up at Elmira at Mr. Mathews' request, previous to my former examination.

100 C. Q. Do you swear positively that it had no private mark on it?

A. It had not the private mark that I put on it.

101 C. Q. Did you mark any other hydrants with your private mark, at Mr. Mathews' request, in Elmira?

A. I did not.

102 C. Q. You stated before adjournment that you could not remember what kind of an arrangement at the top the hydrant which you saw yesterday had. Now, how can you, after the lapse of so long a time since you saw the hydrant which was dug up in Elmira, testify so positively as to its construction?

A. I do not pretend to describe exactly the construction of the hydrant either at Elmira or Rochester, but only as compared with the cuts or lithographs shown, and I only state which of the lithographs represents the hydrant referred to; and in describing the hydrant as having a bell I was in error, and this error I wish to correct.

ISAAC S. HOBBIE.

411 MAY 30, 1884.

JARED M. GLEASON, a witness called in behalf of the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Jared M. Gleason; age, 66; residence, Erie, Pa.; machinist.

2 Q. Were you ever in the employ of Washburn Race and Samuel R. C. Mathews, at Lockport, N. Y.?

A. Yes, sir.

3 Q. When did you go into their employ, and in what capacity?

A. I went into their employ about the first of 1861, as a pattern-maker.

4 Q. During the time of your employment by them did you work at anything else than pattern-making?

A. When there were no patterns to make I worked on the lathe as a machinist; sometimes at the vise work.

5 Q. Was the business carried on subsequently under another name; and, if so, what name, and who had charge of the business?

A. It was subsequently carried on under the name of the Niagara Manufacturing Company; Race & Mathews had charge of it.

6 Q. How long did you continue in the employ of the Niagara Manufacturing Company?

A. Until about the first week in January, 1867.

7 Q. And up to that time at what work had you been employed, generally speaking?

A. Generally speaking, I was employed as a pattern-maker.

412 8 Q. But worked occasionally as a machinist, as you did before?

A. As I said before, when there were no patterns to make I worked as a machinist.

9 Q. What was manufactured by the Niagara Manufacturing Company during your employment by them?

A. They manufactured cistern and well pumps, skates, and hydrants, and steam-engines towards the last.

10 Q. Did you do any pattern work for hydrants; and, if so, what was the character of the last of such work that you did there?

A. The last of such work I did there on hydrant patterns was to make a new set of hydrant patterns.

11 Q. How did the new set of hydrant patterns which you so made compare with the hydrant patterns which had been previously in use there?

A. The new set—in making the case—we made the case to come up on the outside of the stock—ground base where the hydrant comes out of the top of the ground—instead of going inside of the ground base as the old pattern did.

12. Q. Look at the lithograph marked "Race, Mathews & Co. Lithograph," and state whether you ever saw a copy of it before; and, if so, how early.

A. I have seen a copy of this lithograph before; it was in 1863, and this lithograph is from the old hydrant that the case goes inside of the ground base.

13 Q. Where did you see a copy of this lithograph in 1863?

A. I saw it in the shop where I worked and in Race & Mathews' office.

14 Q. You speak of the old-style hydrants having the case at the

top going inside of the ground base; how much room was
413 there in practice between the top of the case and the under side of what might be called the roof of the ground base?

A. There should be, by the patterns, about two inches, but by the moulder's setting cores they would draw them down so that they wouldn't have more than an inch and three-quarters, generally.

15 Q. What was the object of leaving this room between the top of the case and the roof of the ground base?

A. The object was to allow the frost to raise the case without disturbing the stock of the hydrant in the elbow below.

16 Q. Up to the time that you made the new set of hydrant patterns spoken of, had the old style of hydrants manufactured by Race & Mathews, Race, Mathews & Co., and the Niagara Manufacturing Company been made in any different manner from that shown and described in this lithograph ("Exhibit Race, Mathews & Co. Lithograph") during your employment by those parties named?

A. They had; the ground base, where the case went in at the top, was turned off—part of it—and the upper end of the case was enlarged to slip over the outside of the ground base.

17 Q. You have evidently misunderstood the last preceding question, which was, in substance, whether up to the time you made the change described in the last preceding answer the old-style hydrants had been made in any different form from that shown and described in "Exhibit Race, Mathews & Co. Lithograph;" please answer this.

A. No; not to my knowledge.

18 Q. Now, when did you change the hydrant patterns as you have described, from the inside-case to the outside-case con-
414 struction, what provision, if any, was made for end play of the case, and for how much?

A. The provision was made to raise the case between three and four inches instead of about an inch and three-quarters, as it was in the old hydrants.

19 Q. What was done at the lower end of the hydrant, if anything, to admit of this increase of end play, and what was done above to limit the play when the change in the patterns were made?

A. At the lower end, the flange on the elbow that the case set into was made about three inches deeper than the old one was, and at the top, where the case came on the stock, was a bead turned to keep the case from raising over it.

20 Q. When the bottom of the case was in place down into the flange on the elbow, how much room was there between the top of the case and the bottom of the bead spoken of?

A. Between three and four inches, as near as I can recollect.

21 Q. Did you go with the examiner, Mr. William S. Beaman, yesterday to see the hydrant in his custody, at the office of the American Express Company, in Rochester, N. Y., marked "Exhibit Race & Mathews Hydrant;" and, if so, how did it compare with the hydrant made from the patterns which you altered, as spoken of?

A. I went with him to see it. The hydrant I then saw was made from the patterns that I altered.

22 Q. I show you a little book bearing the following inscription upon the inside of the front cover: "U. S. Ct., Mass. Dist., S. R. C. Mathews *et al. vs.* The Boston Machine Company, Complain-
415 ants' Exhibit 9, W. B., special examiner." Did you ever see this book before; and, if so, what was the last time before seeing it here in this room yesterday?

A. I have seen the book; the last time I saw it was in New York city. I left it in the hands of the magistrate who took my deposition there. Until I saw it here yesterday, I had not seen it since.

23 Q. What is this book?

A. It is a book in which I kept my time when I was at work for Race & Mathews.

24 Q. What period of time does this book cover?

A. From April 9, 1866, to September 17, 1866.

25 Q. Do you find any record in this book of work at hydrant or hydrant patterns? If so, specify what you find.

A. I find as follows:

May	24.	At hydrants	8 hours.
	25.	"	10 "
	26.	"	7 "
June	5.	Hydrant *patrons*	10 "
	6.	" "	10 "
	7.	" "	10 "
	8.	" "	10 "
	9.	" "	5 "
	15.	" pat.	10 "
	16.	" "	10 "
	19.	" P.	8 "
	20.	" "	10 "

26 Q. When were these entries made, and by whom?

A. They were made by me as they are set in this book. The dates are correct.

27 Q. What was the work to which these entries refer?

A. Altering and making hydrant patterns.

28 Q. Altering and making what hydrant patterns?

416 A. The hydrant patterns that were manufactured by Race, Mathews & Co. and the Niagara Manufacturing Company.

29 Q. What I want to know is what was the work of altering and making hydrant patterns which is referred to by your entries in this book?

A. It was altering the old pattern from the inside base to the outside to allow the case to come up outside instead of inside. The new pattern was made so that the case came up on the outside as I had altered the old one.

30 Q. Do you mean that besides altering the old patterns in the manner you have described you also made an entirely new set of patterns having the same construction as the others after the alteration?

A. Yes, sir.

31 Q. Under whose instruction did you make those alterations mentioned in the hydrant patterns?

A. Under the instruction of Race & Mathews.

32 Q. How soon after the alteration of those hydrant patterns was there a complete hydrant made therefrom like the "Exhibit Race & Mathews Hydrant" which the examiner showed you yesterday?

A. It might have been a couple of weeks, more or less. I am not certain about that.

33 Q. Do you remember the making of such hydrant of the new pattern?

A. I remember the making of it, certainly. It was made so as to see if the castings fitted all right.

34 Q. What was the condition of the business of the Niagara Manufacturing Company during the last six months of the year 1866?

A. It was very dull.

35 Q. Did you personally know of any practical reason why the change was made in the construction of the hydrant from an inside to an outside case?

417 A. There was a hydrant set in the corner of Main and Pine streets, in Lockport, N. Y., that blew out of the case—broke loose from the elbow. It was claimed that the frost had raised the case and broke the thread loose at the bottom, out of the elbow, and we had to put in another hydrant in place of it. That is the only thing that I can claim that I know personally of the old base not working. Afterwards I got instructions from Race & Mathews to alter it to allow the case to go up from three to four inches.

36 Q. Was it possible to tell readily how far the frost had heaved the cases of the old-style hydrants or to drive the cases back to place without taking out the hydrant?

A. It was not.

37 Q. How was it with the new-style hydrant, with outside case?

A. You could readily see whether it was too high or not, and if it was you could easily drive it down to its place without disturbing the hydrant.

38 Q. Were any more of the new-style hydrants having outside cases made, besides the one you have mentioned, before you left the employ of the Niagara Manufacturing Company?

A. I think there were a few made—perhaps a dozen; perhaps four or five. I couldn't say how many were made; I took no interest in it. I mean sets of castings. I have no recollection of more than one or two being finished up and sent away as samples.

39 Q. Were you ever employed by the Niagara Manufacturing Company, or by any concern with which Race & Mathews were connected in business, after you left, early in January, 1867?

A. No, sir.

418 40 Q. Did you know Thomas R. Bailey, Jr., during the time of your employment by Race & Mathews and the Niagara Manufacturing Company; if so, where was he doing business at the time you left, and for a year or so previously?

A. I knew him at said time. At the time I left, he was carrying

on a little shop about two hundred feet from the building I worked in; I am not certain how long, when I left, he had been in that shop; before he was in that shop he worked in Trevor's building a little further away.

41 Q. Is the same Thomas R. Bailey here present attending this examination?

A. He is.

42 Q. Was he accustomed to come into the shop of the Niagara Manufacturing Company during the last year of your employment there; and if so, how frequently?

(Objected to as leading and immaterial.)

A. He used to come in there once in awhile; he might possibly come in a couple of weeks, perhaps, or once a month, perhaps; once in a great while.

43 Q. What opportunity had anybody coming into the shop while you were at work altering the hydrant patterns to see what you were about?

(Same objection.)

A. They had all the opportunity they wanted. The patterns never were laid away; anybody who came in could see them if they wanted to.

44 Q. How was it with the sample hydrants finished up; what opportunity for seeing them did any one have who might
419 come into the shop? I refer to the sample hydrants made from the altered patterns before you left.

A. They had all the facilities for seeing them they wanted, any time they might come into the shop.

45 Q. Since you lived at Erie, Pa., have you ever received any letters from Thomas R. Bailey mentioned; and if so, in what year?

A. I received two letters from him in the forepart of 1876. The first one I answered immediately; the other one, it might have been a month or five weeks before I sent any answer at all.

46 Q. Have you those letters written to you by the said Thomas R. Bailey?

A. I have not.

47 Q. What search have you made for them?

A. Searched all over my house, among old books and papers, and cannot find them.

48 Q. Please look at the letter now shown you and state who wrote it.

A. I wrote it in answer to the first letter I received from Mr. Bailey.

(Counsel for defendants puts the letter in evidence, and the same is marked "Exhibit Gleason-Bailey Letter," W. S. B., Spec. Ex'r.)

49 Q. Refreshing your memory from this letter, are you able to state the purport of the letter of Mr. Bailey to you, to which this one was an answer?

A. I am no further able than that it would give me an inkling of what he wrote, by this answer that I sent to him.

50 Q. Do you remember the substance of Mr. Bailey's second letter?

A. I do not; but I suppose it was similar to the first one.

420 (Counsel for complainants, as a matter of courtesy, asks Mr. Roberts to admit, as the fact is, that he received defendants' "Exhibit Gleason-Bailey Letter, dated Erie, Pa., April 28, 1876," from counsel for complainants. Counsel for defendants admits that fact, adding, as the fact is, that it was delivered to him after the examination of Thomas R. Bailey, in relation thereto, at Detroit.)

51 Q. Who was the company in the firm of Race, Mathews & Co.?

A. William P. Daniels, as near as I can recollect.

52 Q. Is he living, or is Washburn Race living?

A. I believe they are both dead from what I hear.

Cross-examined:

53 C. Q. In those days, Mr. Gleason, you were not afraid that any one would steal your trade, were you?

A. No, sir; I was not.

54 C. Q. The shops in Lockport at that time, as a general rule, were not closed or barred against the free ingress of mechanics or citizens generally, were they?

A. Not that I ever knew of.

55 C. Q. You and Mr. Bailey have always been on good terms, have you not?

A. Yes, sir.

56 C. Q. And were at that time?

A. Yes, sir.

57 C. Q. It was not unusual, was it, for the workmen in the adjoining shops to exchange friendly visits with each other during your sojourn in Lockport?

A. Not unusual.

58 C. Q. This Gleason-Bailey letter was written April 28, 1876. You gave your testimony in New York, in the case of the Boston Machine Company, as appears from the record, June 7, 1876.

421 Is there any connection between the patterns mentioned by you in that deposition and those referred to in the aforesaid letter?

A. They were all one and the same thing, so far as I know.

59 C. Q. Please look at the drawing of the reissue No. 4887 to Race & Mathews, and especially at the elbow, and state if you know when and by whom that portion of the hydrant pattern was changed to the form which it wears in the "Exhibit Race & Mathews Hydrant," which you say you saw here in Rochester yesterday.

A. I think I changed that in 1864; that is the only change that was made at that time.

60 C. Q. What was the reason of that change?

A. They wanted to have it so that they could set it down on a solid bottom instead of on a round elbow.

61 C. Q. Please examine the said drawing again and state whether the case there shown as letter E has any end play?

A. It was calculated to have two inches end play, but, as I said before, it got only about an inch and three-quarters.

62 C. Q. Is this memorandum book, concerning which you have testified, the only one in which you kept your time while you were with Race & Mathews?

A. No; I used to have them right along; as fast as they were filled up they were carried to the office and left there, but unluckily for this one it got lost; I had to get another one. Some three or four years after we moved from Lockport to Erie my daughters found this one among some old books in an old chest in the house.

JARED M. GLEASON.

Adjourned to Utica, N. Y., at Butterfield House, May 31, 1884, at 10 a. m.

W. S. B., *Spec. Ex'r.*

422 UTICA, *May* 31, 1884.

Present: Edward J. Hill, for complainants; George L. Roberts, for defendants.

JOSEPH J. ILLINGWORTH, a witness in behalf of the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Joseph J. Illingworth; age, 58; residence, Utica, N. Y.; am engineer at the Utica steam cotton mills, in Utica.

2 Q. How long have you been engineer of the Utica steam cotton mills and what have been your duties, generally speaking?

A. Within a few months of 29 years, with the exception of the war, when I was in the U. S navy; my duties have been to take care of the engines, boilers, and apparatus therewith connected.

3 Q. Have you been accustomed to keep any record of matters coming within your duties and under your observations during this time; and, if so, what has been the character of such records?

A. In the shape of a log-book, containing all things pertaining to the engines and boilers and any other things of great importance outside.

4 Q. Have you here present one of these records; and, if so, what period of time does it cover?

A. I have; it covers the period from January, 1859, to December, 1870, inclusive, with the exception from September 30, 1862, to April 14, 1866.

5 Q. Are the entries in this book during the periods mentioned kept regularly and consecutively from day to day?

423 A. Yes, sir.

6 Q. You have this morning, in company with Mr. Edward J. Hill, counsel for complainants; Mr. William S. Beaman, the examiner, and myself, with others, visited a hydrant in the yard of the Utica steam cotton mills, have you not?

A. I have.

7 Q. Will you describe the location of that hydrant, with reference to the chimney and your engine-room and the mill?

A. It is on the south side of the engine and boiler room, between the chimney and west side of the mill, in the back yard of the old, or No. 1, mill.

8 Q. Do you remember when that hydrant was first set in the place where it now is, and if you have any original memorandum relating to it please refer to the same?

A. I remember when it was set where it now is—June 25, 1867; on that date I made in the book of which I have spoken the following memorandum: "Put new hydrant, city water, in the back yard."

9 Q. At that time was there any other mill built than the one you have spoken of as the old, or No. 1, mill?

A. No, sir.

10 Q. Is the hydrant just referred to in the same condition now that it was originally, and if any change has been made state what and when?

A. It is in the same condition, all but the cap on top, which was broken about a year ago last March.

11 Q. How was it broken and where did the cap come from which was substituted?

A. The nut was twisted off the valve-stem. The new cap was got from the fire department of Utica.

424 12 Q. Have you, in company with the same gentlemen who visited the hydrant just mentioned, also this morning visited the office of the American Express Co., in Utica, and examined the hydrant in the custody of the examiner, Wm. S. Beaman, marked "Exhibit Race & Mathews Hydrant?"

A. I have.

13 Q. How does this hydrant which you examined at the express office compare in construction with the hydrant in the back yard of the old mill, which was set June 25, 1867?

A. They are substantially the same.

14 Q. Both in respect to form and dimensions, do you mean?

A. Yes, sir.

Cross-examination:

15 C. Q. Do you mean to say that you can positively testify as to the construction of the hydrant which you say was set June 25th, 1867, especially as to the part of it beneath the surface of the ground?

A. In form, yes; they are alike. I don't know about the internal arrangements.

16 C. Q. Have you seen the bottom of the hydrant aforesaid at any time since it was set?

A. Yes, sir.

17 C. Q. When?

A. I can't remember; some three or four years ago we were digging up; we broke a pipe in the yard.

18 C. Q. Did you dig this hydrant up then?

A. We dug down to it.

19 C. Q. Did you examine the raised letters upon the cap of this hydrant to-day, and will you give us the inscription thereon?

A. I did examine; it is as follows: "R. D. Wood & Co., Philadelphia; pat. Jan., 1858; Nov, 16, 1869."

425 20 C. Q. Do you know what has become of the old cap?

A. I do not; I guess it was broken up and sold for old iron; I don't know what marks were on it.

Redirect:

21 Re-D. Q. What color is the new cap painted, and what is the color of the old hydrant on which it was put?

A. The new cap is green; the color of the old hydrant is dark red.

22 Re-D. Q. Has either of them been painted since the old cap was broken?

A. No, sir.

23 Re-D. Q. Are the bolt holes through which the bolts for securing the new cap to the top of the hydrant post the same as those originally made in it, or are the original bolt holes now unfilled?

A. They are unfilled; new ones were bored for the new cap.

24 Re-D. Q. Please explain the reference to city water in the memorandum of June 25, 1867, which you have quoted from your "log-book."

A. To distinguish it from the steam fire-pump hydrants; the term "city water" was to distinguish it from the canal-water pipes; we have both kinds.

J. J. ILLINGWORTH.

UTICA, N. Y., *May* 31, 1884.

CHARLES W. PRATT, a witness called in behalf of the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

426 A. Charles W. Pratt; age, 49; residence, Utica, N. Y.; am superintendent of the Utica Water-Works Company, and have been such for the last ten years.

2 Q. Have you this morning examined the files in your custody to see what you could find relating to a hydrant purchased by the Utica Water-Works Company from the Niagara Manufacturing Company of Lockport in the spring of 1867; and, if so, what have you found?

A. I have made the examination of the files and find three papers. The first is a letter dated April 19, 1867, from S. R. C. Mathews, secretary, to E. Blauvelt, superintendent, of Utica Water-Works Co. The second is a receipted bill of the Niagara Manufacturing Co. to the Utica Water-Works Co., dated May 6, 1867, and the third is a letter dated May 15, 1867, from S. R. C. Mathews, secretary, to E Blauvelt, superintendent, of Utica Water-Works Co., which I here produce.

(Counsel for defendants puts the papers produced by the witness in evidence, the letters being marked, respectively, "Exhibit Math-

ews-Blauvelt Letters No. 1 and No. 2" and the bill "Exhibit Utica Water-Works Bill.")

Cross-examination:

3 C. Q. You know nothing concerning the transaction of your own knowledge?

A. No, sir.

CHAS. W. PRATT.

UTICA, N. Y., *May* 31, 1884.

GEORGE H. WILEY, being duly sworn, deposes and says, in answer to interrogatories by Mr. ROBERTS:

1 Q. What is your name, age, residence, and occupation?

427 A. George H. Wiley; age, 58; residence, Utica, N. Y.; am superintendent of the Utica steam cotton mills.

2 Q. How long have you been such superintendent?

A. Thirty-one years.

3 Q. Will you please state in narrative form what you know about the hydrant which is set in the back yard of your No. 1 mill, between the chimney and the west-side mill, and concerning which you heard your engineer, Mr. Joseph J. Illingworth, testify to-day?

A. I purchased the hydrant from the Utica Water-Works Co., and have the original bill on file in the office, of which this is a correct copy. I also employed Mr. Marmaduke Clark to set the hydrant, and have the original receipt on file, of which I produce a correct copy. I have referred to the journal, page 238, noted upon that receipt, and find the following entry:

"UTICA, 1867, *June* 29.

"Paid M. Clark for putting down hydrant $2."

I personally remember the setting of the hydrant, and know it is the hydrant mentioned in these bills and the entry, and from these bills and Illingworth's log-book I am positive that it was set during the month of June, 1867. It has been there in the same place ever since, and has suffered no change, except the breaking of the cap, which was replaced, as testified to by Mr. Illingworth, by a cap from another hydrant. I have this morning taken measurements of this hydrant above ground, and compared them with corresponding measurements of the hydrant, "Exhibit Race & Mathews Hydrant," in the custody of the examiner at the office of the American Express Company in this city, and in presence of counsel for both parties, and have counted the flutings upon both hydrants, and find them to have been both made from the same pattern.

428 Cross-examined:

4 C. Q. Please explain how it happened that this hydrant was purchased through the intervention of the Utica Water-Works Company.

A. At that time we had been in the habit of purchasing our water pipe and fixtures from them, and for that reason I asked them to

order a hydrant for me to replace one formerly placed there by them about 1850.

GEO. H. WILEY.

(The copy of the bill from the Utica Water-Works Co. to the Utica steam cotton mill produced by the witness is put in evidence and marked "Exhibit Utica Steam Cotton Mill Bill," and the other bill is put in evidence and marked "Exhibit Marmaduke Clark Bill.")

UTICA, N. Y., *May* 31, 1884.

MARMADUKE CLARK, a witness in behalf of the defendants, duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Marmaduke Clark; aged 46; residence, Utica, N. Y.; am overseer of the Utica Water-Works Company; I have been in the employ of that company since April 1st, 1863, in the same capacity.

2 Q. Please look at "Exhibit Race, Mathews & Co. Lithograph" and state what you know about it.

A. It was sent here from Race & Mathews in the latter part of the summer of 1864. It has been in my possession ever since, until about two weeks ago, when I signed my name at the bottom of it in order to identify it, and gave it to Mr. Samuel R. C. Mathews, here in Utica, at the water-works office.

3 Q. Did the Utica Water-Works Company ever receive any
429 hydrants of the style shown and described in this lithograph; and, if so, when first and how do you fix the date?

A. The city of Utica received them, and you put them down for the city of Utica. The city owns the hydrants; the water company keeps them in repair. I have here to-day the Utica water-works day-book, kept from April 22, 1853, to the present year. I find in this book, under date of October 26th, 1864, the following entry:

"OCTOBER 26.

"City of Utica, Dr.

"To putting down the following new hydrants of Race & Co.:
"1 cor. Fayette and Pine.
"1 cor. Seneca and Whitesboro.
"1 cor. Main, opposite Butterfield stables.
"1 cor. John and Blecker.
"1 cor. Union and Carnahan," etc.

There are other items, which I don't stop to read. These entries were made from a small book which I used to carry in my pocket. I superintended the setting of these hydrants.

4 Q. Did the jackets of these hydrants have end play, as shown in "Exhibit Race, Mathews & Co. Lithograph;" and, if so, how much and what experience did you have with them?

A. They had about two inches end play. They would vary a little. They slipped up on the inside like the lithograph aforesaid. In the winter of 1865 there were two or three of them heaved and broke off. By unscrewing them and examining them I found the

sleeve, or the jacket, as we call it, had heaved with the frost and got up to this shoulder here (indicating). We found that when it had got up to this shoulder it broke off at the bottom. Something had to give. In the summer of 1866 we dug every one of them
430 up; stripped them down to the bottom. We bricked them up from the bottom to the surface. At the same time we put the jackets down to the original place where they belonged. I made a file mark on the back of each case two inches below the flange inside of which the top of the jacket goes, so that I could afterwards detect how much it had heaved. I received the said lithograph some time before the hydrants came.

5 Q. Did you hear the testimony of Joseph J. Illingworth and George H. Wiley to-day, and were you with the counsel for both parties in this case and the examiner at the time of the visit this morning to the hydrant in the back yard of No. 1 mill of the Utica steam cotton mills and the hydrant at the American Express Company's office, marked "Exhibit Race & Mathews Hydrant?" If so, state what you know about both hydrants.

A. I heard Mr. Illingworth's testimony, but not Mr. Wiley's. I was one of the party who made the visits mentioned. I set that hydrant in the back yard of mill No. 1, and I saw my receipt for the work at the office of the Utica steam cotton mills this morning, of which "Exhibit Marmaduke Clark's Bill" is a correct copy. I saw Mr. Wiley take measurements of both the hydrants mentioned, and I recognized the one that I set in the back yard of the old mill, as mentioned, as being of the same pattern as the "Exhibit Race & Mathews Hydrant," except the top cap. I know that the cap now on the hydrant in the mill-yard is not the cap that was on the hydrant when I set it.

Cross-examination waived.

MARMADUKE CLARK.

Adjourned by consent to Wednesday, June 4, 1884, at 10 a. m., at 140 Nassau street, New York city.

W. S. BEAMER,
Special Examiner.

431 Testimony in behalf of the defendants before William S. Beaman, special examiner, taken pursuant to adjournment.

NEW YORK, *June 4th*, 1884.

Present: George L. Roberts, Esq., for defendants; Edward J. Hill, Esq., for complainants.

ROBERT B. COAR, a witness called in behalf of the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Robert B. Coar; age, 51; residence, Jersey City; I am water purveyor of the board of public works in Jersey City, N. J.

2 Q. How long have you held your present position?

A. Since 1876. I held it from 1863 to 1870 or 1871; then I was out till 1876?

3 Q. What have been your duties as water purveyor, and especially from 1863 to 1870?

A. In charge of all pipe-laying and distribution of water.

4 Q. What connection with hydrants and the setting of them did that include?

A. Placing them in position for use and examination of them.

5 Q. Have you examined the hydrant in the custody of the examiner, marked "Exhibit Race & Mathews Hydrant;" and, if so, what do you know of its history?

A. I have examined it. We have had it in use since 1866.

6 Q. Where has it been in use, and about when was it taken up, and how do you identify it?

432 A. It has been used in Seventh street, I think—I wouldn't be positive—Jersey City. It was taken up about a month ago, I think. I identify it by a cold-chisel mark that was put on it when it was taken up.

7 Q. Are there any peculiarities of construction which enable you to recognize it as a hydrant used for the length of time you have mentioned?

(Objected to as leading.)

A. Yes; the top part screwing on to the body of the hydrant. I objected to it on that account when we first got it—when I first saw it.

8 Q. To what do you refer as the top part screwing on to the body of the hydrant?

A. The top cover or cap.

9 Q. How was the cap attached to hydrants of the same manufacture subsequently procured?

(Objected to as immaterial .)

A. They slipped over the top and were bolted on with bolts.

10 Q. Of whose manufacture was this hydrant, "Exhibit Race & Mathews Hydrant?"

A. We got them from a manufacturing company. I forget the name now; I think Lockport Manufacturing Co.

11 Q. Do you remember who were the managers of that company at that time?

A. I do not.

12 Q. You have mentioned the year 1866 as a date since which this hydrant has been in use; how do you fix that date?

A. I fix that date as the time when John F. Ward was elected chief engineer of the water-works. The reason that he was one of those kind of men that always takes up something new and tries it.

433 13 Q. How do you connect the procuring of this hydrant with Mr. Ward's election as chief engineer of the water-works, in 1866?

A. Because we had always used Ayres' hydrant previous to that.

14 Q. How soon after his election as chief engineer is it your recollection that he caused the first hydrant like "Exhibit Race & Mathews Hydrant" to be procured?

A. Well, I couldn't say exactly, but I think we set them the following spring; I think they came in the winter—that is, the winter of 1866 and 1867, or early in the spring of 1867; we commenced working in the spring; didn't use them till then; that is my impression. Mr. Ward was elected in 1866, in May, I think.

15 Q. What is your recollection as to the number of hydrants which come first, and then as to the number which were procured during the spring of 1867?

A. I think one came first; I think we got eleven afterwards; I think we had a dozen in all.

16 Q. Did you keep books relating to the construction of waterworks, including pipe-laying and hydrant-setting, and have you made search to find the books covering the year 1867; if so, with what result?

A. We did. I have been informed that the books were destroyed by fire; I was not in the department at that time.

(Objected to as hearsay.)

17 Q. I show you a printed book, entitled "Manual of the Board of Water Commissioners of Jersey City, 1866–'7;" what do you know about the publication of such books from year to year?

A. I know that such books were published from year to year.

434 18 Q. Do you find therein a record of the election of John F. Ward as superintendent and engineer; and, if so, under what date?

A. I do; on May 7, 1866.

(Objected to as immaterial and not the best evidence.)

19 Q. Did you ever hear the name Niagara Manufacturing Co.? If so, in what connection?

A. That's the name I had reference to, in connection with those hydrants, when I said Lockport Manufacturing Co.

Cross-examined:

20 C. Q. You only have impressions, as you have stated, in regard to these matters, based upon the election of John F. Ward superintendent and engineer at Jersey City, which you say was in May, 1866?

A. I have no impression; I have a fixed fact in my mind that that was the time.

21 C. Q. Time of what?

A. Time of receiving these hydrants. We received them in 1867, in the early winter or spring.

22 C. Q. This hydrant over in Park Place that you have seen to-day and testified about as having been dug up within a short time, did you see it dug up? If so, when?

A. I didn't see it dug up; I saw it after it was dug np.

23 C. Q. Then, of your own knowledge, you don't know whether it was dug up in Jersey City or not, do you?

A. I didn't see it dug up; I feel positive of it, however; am just as sure as of anything which I didn't see with my own eyes; I saw the place where it was said to be dug out of, by my orders, by James Carroll.

435 24 C. Q. You saw a hole in the ground from which somebody told you this hydrant was dug out of, did you not?

A. No; I saw another hydrant placed in the hole.

25 C. Q. When did you put the mark on this hydrant?

A. About a month ago, immediately after it was taken out; I can't fix the day.

26 C. Q. Describe the mark you put on it.

A. A cross, put on the bell part of the elbow, and also on the body of the hydrant.

27 C. Q. Who put that mark there?

A. James Carroll.

28 C. Q. Where was the hydrant then?

A. In the pipe yard of the board of — works.

29 C. Q. Then the first time this hydrant which you saw in the pipe yard came to your notice there your attention was called to it by James Carroll, was it?

A. Yes; he told me that he had taken it out and brought it there.

30 C. Q. You didn't see it taken out and brought there?

A. No, sir.

31 C. Q. In 1866 and 1867 you were the water purveyor of Jersey City?

A. Yes.

32 C. Q. How many hydrants were bought for that city during 1866?

A. I couldn't tell.

33 C. Q. Of what construction were they?

A. Principally the New York hydrant—Ayres' hydrant we call them.

34 C. Q. What number did you buy in 1867?

A. I have no way of fixing the number.

35 C. Q. What are your duties as purveyor?

436 A. Superintending the laying of all pipes and setting of hydrants.

36 C. Q. Are you a mechanic?

A. Yes, sir.

37 C. Q. In what department of the mechanic arts?

A. I am a carpenter by trade.

38 C. Q. Not a machinist?

A. No, sir.

39 C. Q. When was your attention first called to the peculiarity of construction of the hydrant which you saw to-day?

A. I think it was shortly after we received the first one.

40 C. Q. When did you receive the first one?

A. In the winter of 1867?

41 C. Q. Do you mean January, or February, or December?

A. It was after January—early in 1867.

42 C. Q. How do you fix that date?

A. I fix that date because we were doing no pipe work at the time; the weather would not permit it.

43 C. Q. That is true with regard to several winters along there, isn't it?

A. Yes, sir.

44 C. Q. How many hydrants were purchased about that time from the Niagara Manufacturing Company by the city of Jersey City?

A. I think we had a dozen of them in the years 1867 and 1868.

45 C. Q. These were of various sizes and kinds, were they not?

A. I think the first one we got was a little different from the others. Mr. Ward had some alteration made in regard to the bend at the bottom—the bell part at the bottom.

437 46 C. Q. Describe what you know about that alteration.

A. The alteration he had made was—he made a spherical bell.

47 C. Q. Please look at "Exhibit Race, Mathews & Co. Lithograph," and state whether or not any hydrants of the construction represented by this lithograph were ever set in Jersey City to your knowledge. If so, where were they placed?

A. This is like the hydrant we had.

48 C. Q. How many and where were they set?

A. They were not all like this—the twelve we got. My impression is that the first one was like this (referring to the lithograph); the elbow was altered; the others were a different elbow. I couldn't locate where they were set unless I went around the city to make a memorandum of the location.

49 C. Q. Who had charge of the hydrants after they were set, in 1866 and 1867?

A. Mr. Carroll had charge of all the hydrants after they were set.

50 C. Q. Your attention was not called particularly to the mechanical construction of the hydrants which were set under your superintendence, was it?

A. Sometimes.

51 C. Q. Who selected the hydrants?

A. The chief engineer at that time selected them.

52 C. Q. They were bought by the city, were they?

A. They were bought by the board of water commissioners for the city. This board managed its own affairs independently of the city.

53 C. Q. Then you had nothing to do with the purchase of the hydrants?

A. No, sir.

438 54 C. Q. And nothing to do with the purchase of pipe?

A. No, sir.

55 C. Q. And nothing to do with the digging of the trenches?

A. Superintending it and seeing that it was properly done.

56 C. Q. As to the laying of the pipe?

A. Same answer.

57 C. Q. Did you have no inspector of pipe-laying and setting of hydrants?

A. That was my duty.

58. C. Q. You know that hydrant was dug up and another one set in its place in Jersey City about a month ago, do you?

A. Yes, sir.

59 C. Q. Where was this?

A. Seventh street, near Coles street, on the south side of the street.

60 C. Q. Of what construction was the new hydrant that was set there?

A. Jersey City hydrant.

61 C. Q. How happened this one to be dug up, if you know?

A. By the application of Mr. Mathews.

62 C. Q. Did he apply to you?

A. He did.

63 C. Q. What did he say when he applied to you?

A. He said he wanted to get one of those first hydrants that were furnished by him of that pattern—Lockport hydrant.

64 C. Q. Did he show you the one he wanted?

A. He gave me the description of it.

65 C. Q. And you gave orders to have this one dug up, did you, on that application?

439 A. Yes, sir; I first got permission from the committee of extensions and distributions to have it taken out.

66 C. Q. How happened you to select this one out of the dozen that you received?

A. Because the cap screwed on it; that is how I knew that it was the first one received. He wished to have the first. We never had any more of them after that first lot; the rest had the cap fastened on with bolts.

67 C. Q. Are there any other hydrants over there now in use which have this cap screwed on now?

A. No, sir; except the first lot.

68 C. Q. How do you know?

A. I know there are none, except that first lot, and perhaps some of those were not that kind; I wouldn't say but that some of those have been altered to caps with bolts.

69 C. Q. Since this lot of hydrants were purchased of the Niagara M'f'g Co., of what construction have been the hydrants usually purchased by the Jersey City water-works?

A. They have used different kinds.

70. C. Q. Have you given any particular attention to the construction of this lot of hydrants purchased of the Niagara Manufacturing Co., since they were set, until Mr. Mathews' application to you to dig one up?

A. No, sir.

71 C. Q. Then from your own knowledge you couldn't swear positively, could you, to-day, that this "Exhibit Race & Mathews Hydrant," concerning which you have testified, was ever in Jersey City, could you?

A. I will swear it was in Jersey City.

72 C. Q. This one?

440 A. This one I saw to-day.

73 C. Q. How do you know that fact?

A. The mark I saw put on the bell of the bend.

74 C. Q. Couldn't that mark have been put on some other hydrant than the one you saw?

A. It could; certainly.

Redirect:

75 Re-D. Q. Your attention has been called to the lithograph "Exhibit Race, Mathews & Co. Lithograph." Please look at it once more and state whether, when your attention was called to it by counsel for complainants, you particularly examined the upper part of the hydrant case and the manner in which it is represented as fitted to the hydrant?

(Objected to as leading.)

A, I did not.

76 Re-D. Q. Will you now examine that part and state how you understand the hydrant case represented on this lithograph is fitted to the hydrant, and whether any of the Jersey City hydrants obtained from the Niagara Manufacturing Company ever had that construction?

(Objected to as incompetent.)

A. They had cases, but not of that form; there was no shoulder there; we never had any of that construction; there is no fitting about it; it fits at the bottom, and is held in place at the top by the hydrant.

77 Re-D. Q. When you say that it fits at the bottom and is held in place at the top by the hydrant, to what hydrant do you refer?

A. I refer to the one represented in the lithograph.

78 Re-D. Q. How was it with the top of the hydrant cases

441 which were procured from the Niagara Manufacturing Company for use in Jersey City; did they shut in under a flange or bell on the hydrant as represented in this lithograph?

(Objected to as leading and incompetent.)

A. They did not.

79 Re-D. Q. Are you acquainted with the handwriting of John F. Ward, whose name you have mentioned; and, if so, what opportunities have you had for becoming so acquainted?

A. I am acquainted with it by being in the office with him about two years; frequently saw him write; I have corresponded with him.

80 Re-D. Q. Please look at the letter now shown you and state in whose handwriting it is, except the words and figures "Complainants' Exhibit 10, W. B., special examiner?"

A. John F. Ward's.

(Counsel for defendants puts the letter in evidence, and the same is marked "Exhibit Ward Letter.")

(Objected to as immaterial.)

81 Re-D. Q. Please state also whose signature is appended to the paper now shown you?

A. John F. Ward's.

(Counsel for defendants puts the paper in evidence, and the same is marked "Exhibit Ward Affidavit.")

(Same objection.)

ROBERT B. COAR.

Witness, after signing his deposition, states that the place from which the hydrant was taken in Jersey City was Twelfth street, instead of Seventh street, and was between Grove and Erie streets.

ROBERT B. COAR.

442 NEW YORK, *June* 4, 1884.

JAMES REID, duly sworn as a witness in behalf of the defendants, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. James Reid; age, 33; residence, Jersey City, N. J.; am a seedsman.

2 Q. Are you the same James Reid who testified on June 9th, 1876, in the cause in equity pending in the circuit court of the United States for the district of Massachusetts, entitled S. R. C. Mathews *et al vs.* Boston Machine Co. *et al.*, a certified copy of which I show you?

A. I am.

3 Q. Is the testimony which you gave in that deposition correct, to the best of your present recollection, as shown by this copy, and have you read the same?

A. Yes, sir.

Counsel for defendants puts the certified copy in evidence, and the same is marked "Exhibit Reid Former Deposition."

(Objected to as immaterial.)

4 Q. Will you turn to the minutes of the board of water commissioners of Jersey City, under date of May 27, 1867, and state what claim, if any, of the Niagara Manufacturing Company you find to have been presented, audited, and ordered to be paid?

(Same objection.)

A. The claim of the Niagara Manufacturing Company, $280, was on that date presented, and at a meeting held June 3d, 1867, it was found correct and ordered to be paid.

Cross-examination waived.

JAMES REID.

443 NEW YORK, *June 4th*, 1884.

JAMES CARROLL, a witness called in behalf of the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. James Carroll; age, 55; residence, Jersey City, N. J.; am foreman of the Jersey City water-works.

2 Q. How long have you been a foreman of the Jersey City water-works?

A. Thirty-two years.

3 Q. What have been your duties as foreman?

A. Laying pipes, setting hydrants and gates, and keeping the same in repair.

4 Q. Have you just now examined the hydrant marked "Exhibit Race & Mathews Hydrant;" and, if so, what do you know of it?

A. I have examined it; I know it is the hydrant that we have set and taken out.

5 Q. By what name have you generally known hydrants of this kind?

A. As the Lockport, N. Y., hydrant.

6 Q. Why have you called it the Lockport hydrant?

A. It was marked so on the top of the hydrant—on the cover.

7 Q. When was this hydrant, "Exhibit Race & Mathews Hydrant," dug up, and how do you know it to be the same?

A. It was dug up about a month ago. I know it is the same by the marks that I put on it.

8 Q. Where did you put marks on it and with what?

A. I put marks on with a chisel on the bell (some call it a hub), one on the jacket, one on a ring on the body of the hydrant to keep the jacket from slipping up.

444 9 Q. What did you personally do, if anything, in digging this hydrant up?

A. I superintended digging it up.

10 Q. And when it had been dug up what did you do with it?

A. We took it to the pipe-yard.

11 Q. When did you put the marks on it?

A. I think the day we took it up; I think on the ground where we took it up.

12 Q. How long had it been in the ground where you dug it up?

A. That I couldn't positively say. It must be there between 1866 and 1871, some time. I couldn't tell.

13 Q. Had it ever been before dug up or disturbed, to your knowledge, since the time it was first set in that place?

A. No, sir.

14 Q. Why do you put the time of its being set there as between 1866 and 1871?

A. Mr. Ward came in as engineer in 1866, I believe, and he went out, as I see by a little book of mine, in April, 1871.

15 Q. What has Mr. Ward's coming in and going out, as engineer, to do with your recollection of the time when this hydrant was set?

A. I know Mr. Ward was the first engineer who ever introduced this hydrant into Jersey City that I have any knowledge of.

16 Q. What is your recollection as to whether this hydrant was introduced early or late in Mr. Ward's administration as engineer?

A. I think it was in the commencement of his administration.

17 Q. How came you to dig up this hydrant?

445 A. Mr. Mathews asked if we had any of the old Lockport hydrants in Jersey City. I told him I thought I knew where there were some of them. He asked me if I knew which was the first. I told him I did, by the cap at the top of the hydrant screwing on in place of being bolted. Then he asked me if I would find out the place and get one dug up for him and have it shipped to Florence, New Jersey, for him.

18 Q. From whom did you get your authority to dig it up?

A. Our water purveyor, Mr. Coar, gave me authority.

19 Q. Was there ever any Lockport hydrant set in Jersey City with the top of the jacket going up inside of a bell or ring so that it could not be seen when the hydrant was set?

(Objected to as leading and incompetent.)

A. No, sir.

Cross-examination waived.

JAMES CARROLL.

Adjourned till June 5, 1884, at 11 a. m.

NEW YORK, *June* 5, 1884—11 a. m.

Met pursuant to adjournment.

Present: Edward J. Hill, for complainants; George L. Roberts, for defendants.

Adjourned till June 6, 1884, at 10 a. m.

W. S. BEAMAN,
Special Examiner.

446 NEW YORK, *June* 6, 1884—10 a. m.

Present: Edward J. Hill, for complainants; George L. Roberts, for defendants.

ALBERT CHESEBRO, a witness for the defendants, being duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Albert Chesebro; age, 75; residence, Jersey City, N. J.; am in no business at present.

2 Q. What was your former business, and where did you carry it on between 1841 or 1842 and 1871 or 1872?

A. I was a builder in New York city. We did jobbing work as well as new buildings. My place of business was Duane street, next to the corner of Hudson. It also had an entrance on Hudson street.

3 Q. During this thirty years of business did you do any work for the Croton water department of New York city; and, if so, of what character?

A. I did all their work for a number of years—I think I am safe in saying for ten years—making stop-cock boxes, which set over the pipe in the middle of the street, with an iron cover. I made also

the hydrant boxes, where the hose is screwed on, of Georgia pine, and made all kinds of stop-cock boxes. They were different for different locations. One was what they called the surface-hydrant box.

4 Q. Please look at the wooden structure now shown you, and state if you know what it is.

A. This is what they used to call a hydrant box. This is
447 made to set over the flange of the hydrant and to fit the flange. Being made of staves, it necessarily was not quite round on the inside. Then I fitted a board or plug the size of the hydrant flange. Then I rounded an old jack-plane, and would plane the inside until the plug pattern would fit into it.

5 Q. How early did you make hydrant boxes like this one here present?

A. I find I was making them in 1851. Then after that I could not tell how long; for a good while.

6 Q. When you say that you continued making them for a good while after 1851 can you state approximately the number of years?

A. Probably four or five years; perhaps longer; I couldn't tell.

7 Q. When you say you found you were making them in 1851 to what did you refer as fixing that date?

A. I have some old books stowed away in my garret, and have found charges in them against the Croton department as far back as 1851 for hydrant boxes.

(Counsel for defendants puts the hydrant box referred to by the witness in evidence, and it is marked "Exhibit New York Hydrant Box, W. S. B., Spec. Ex'r.")

(Objected to as immaterial.)

8 Q. Can you give some idea of the extent of your manufacture of such hydrant boxes as this, "Exhibit New York Hydrant Box," from 1851 down to the end of the five years or more during which you made them?

A. That would be very difficult, but I am safe in saying that I made as many as five hundred. They used to order as many as twenty-five at a time, and we made them and took them up to the pipe-yard.

9 Q. Did you ever, during that time of your manufacture of such hydrant boxes, see them in use upon hydrants in the city of New York?

448 A. I don't know that I ever saw one set, but I have seen them round the flange of the hydrant after they were set.

10 Q. How long do you remember to have seen hydrants in the city of New York with the flanges surrounded by the tops of such wooden boxes as you made?

(Same objection.)

A. Up to the time of my leaving the city I think they were using the same boxes; that was twelve years ago last May. I wouldn't be positive but that they are using them now.

11 Q. Please look at the sectional model now shown you and state how the flange of the hydrant and the top of the wooden box there represented compares with the hydrants and tops of wooden boxes such as you made in the fifties and saw used upon such hydrants?

(Objected to as immaterial and incompetent.)

A. This (indicating) represents the flange in here, inside of these staves, and the top of this wooden box fits onto it. We fitted the top of this box so that we knew it would press over that flange, and that when they got to the place they would have no trouble putting it on.

12 Q. What was the hydrant called for which you made such wooden boxes, if it was known by any manufacturer's name?

A. I think it was the Ayres hydrant.

13 Q. What was the purpose for which these wooden boxes were made and applied to such hydrants?

(Objected to as immaterial.)

A. Mr. John Flender, the water purveyor, came to me and
449 wanted me to make so and so, describing it. Then he added that the box was to prevent the earth from touching the hydrant, and so that the box would raise by the frost and not disturb the hydrant. He said the frost raised the hydrant and broke the connection of the water below.

(Answer objected to as hearsay.)

14 Q. Do you remember the name of any foreman of repairs of the water department of the Croton water-works of the city of New York during the time that you made such boxes as the "Exhibit New York Hydrant Box," to whom some of these boxes were delivered?

A. Samuel White was the foreman for the lower part of the city during all the time I worked for the department. Then there was a man named Keegan, who used to repair further up-town. I have sent boxes to him as far as 21st street. These two men used to come to my shop and take things for repairs in the lower part of the city. White is dead. Keegan, I think, is alive.

15 Q. Is the name of Mr. Keegan, to whom you have referred, James D. Keegan?

A. I think that is the name.

(Counsel for defendants put in evidence the sectional model referred to in interrogatory 11 and answer, and the same [is] marked "Exhibit Board Model New York Hydrant," W. S. B., Spec. Ex'r.)

(Objected to as immaterial and incompetent.)

Cross-examination:

16 C. Q. You never manufactured any hydrants?

A. No, sir.

17 C. Q These boxes were made exclusively for the city of New York, were they not?

450 A. I never made for anybody else.

18 C. Q. Of your own knowledge of the office or function of these boxes you know nothing?

A. Well, I know in my own mind that the frost would raise that box and leave the hydrant undisturbed on the inside of it.

19 C. Q. Did you ever see one raised by the frost?

A. I never examined one, but I know frost will raise anything where the earth comes to it.

20 C. Q. But you never saw one of those boxes that had been raised by the frost, did you?

A. I never was called to take notice of anything of that kind.

21 C. Q. You know nothing about the construction of the hydrant around which these boxes were set, do you?

A. I do not.

22 C. Q. Do you know why these boxes were made larger at the bottom than at the top?

A. I know of no other reason than that the hoops would grow tighter as they move down. We couldn't make them and drive hoops on them so that the hoops would hold if the box was perfectly straight.

23 C. Q. Did you ever make any boxes with curved staves like a barrel?

A. No, sir; we never made — but like this one (indicating "Exhibit New York Hydrant Box"). We beveled the staves in the corner and set them up; then worked them at the inside till the flange would go in easy.

ALBERT CHESEBRO.

NEW YORK, *June* 6, 1884.

GEORGE W. BIRDSALL, a witness in behalf of the defendants, being duly sworn, deposes and says:

451 1 Q. What is your name, age, residence, and occupation?

A. George W. Birdsall; age, 48; residence, New York city; am engaged in the department of public works, New York city. I am a civil and mechanical engineer by profession.

2 Q. With what branch of the department of public works are you connected, and how long have you had any connection therewith?

A. With the bureau of the chief engineer of the Croton aqueduct, since January, 1872.

3 Q. Please look at the "Exhibit New York Hydrant Box" and state what you know of its use in the city of New York, and how long ago your attention was first called to it.

A. My first remembrance of seeing such a hydrant box, and its applicatian to a hydrant in the city of New York, was in the spring of 1857. My attention was called to it then by seeing the employés take out an old box hydrant and put one in like this "Exhibit Board Model New York Hydrant," with a friend of mine who had been connected with the Croton department a good many years. We discussed the question of a better outside box or casing for a

hydrant. During that discussion we closely examined the wooden box, staves, hoops, and its method of application. Since that time I have noticed the workings of the same up to 1872, as I walked along the streets, and since my connection with the department, having charge of the buying, laying of pipes, and placing of hydrants, my attention has been more especially called to it.

(Question and answer objected to as immaterial.)

452 4 Q. How does this, "Exhibit Board Model New York Hydrant," compare with the construction and mode of application of the hydrant and wooden box as you saw them in the spring of 1857?

A. Very closely.

5 Q. What has been the result of your experience and observation as to the action of the frost upon such wooden boxes as this "Exhibit New York Hydrant Box" and as to their efficiency in protecting the hydrants to which they have been applied from the heaving action of the frost?

(Objected to for same reason, and also because the question is general and not directed to any particular sample or specimen.)

A. The action of the frost gradually raises the box out of the ground, some years more, some years less. I have found, during my experience of the last twelve years, that it is a cheap and efficient protection of the barrel of the hydrant from frost and its action.

6 Q. Are such boxes as this "Exhibit New York Hydrant Box" still in use around hydrants for their protection from frost in the city of New York, as illustrated by "Exhibit Board Model New York Hydrant?"

A. Two-thirds of the hydrants in the city of New York have wooden boxes substantially of the same construction as the "Exhibit New York Hydrant" for their protection from frost, and about one-half of those now being put in have wooden boxes around same essentially the same as this "Exhibit Board Model New York Hydrant."

Cross-examined:

7 C. Q. How are these boxes furnished—by whom?

A. By different parties; carpenters.

453 8 C. Q. They are furnished directly to the city from carpenters or builders and not hydrant-makers, are they not?

A. Yes, sir; sometimes we let them by contract, and the parties put the boxes and hydrants all in.

9 C. Q. The box comes up on the outside of the hydrant, and its upheaval by the frost is unlimited, is it not?

A. If not repaired it would be.

10 C. Q. How long does one of these wooden boxes last?

A. On an average, I should say, about seven years.

11 C. Q. Then a new box has to be put in about once in seven years?

A. Yes.

12 C. Q. How do you repair the box; what do you refer to by repairing?

A. When a box is raised by frost over eight inches to a foot it interferes with the action of the waste-valve to the hydrant, when it becomes necessary to dig up the ground around the hydrant to examine the waste; when this is done the box is lowered to its original position. Repairs to the valves of a hydrant, which are about the first part to require repairs, also necessitates the digging up of the ground and the replacing of the barrel by another, at which time the box is also reset in its original position.

13 C. Q. How deep does the ground usually freeze here in New York?

A. In unpaved streets from a foot to four feet; in paved streets from six inches to about three feet.

14 C. Q. How long would it take to heave one of those boxes six to eight inches from its original position?

A. The shortest time I remember was about three years.

454 15 C. Q. Have you in mind any particular hydrant? If yea, please designate its location.

A. Its location was in Riverdale, in a rock trench. It was on Riverdale avenue. We have no streets up there.

16 C. Q. What was the nature of the surroundings?

A. It was in a rock cut. The filling around the hydrant was made by dirt. This being a rock cut in an unsewered avenue, more or less of the drainage of the ground in the immediate vicinity came to the cut and followed the same, leaving the ground around the hydrant saturated with water, and, being in an exposed position, thawing during the day and freezing during the night, it had a first-class opportunity to operate upon the loose box.

17 C. Q. You state that you are a mechanical engineer by profession. Where, when, and how long did you study for that profession?

A. My father was a steam and mechanical engineer, so that my first lessons in mechanical engineering commenced about as long ago as I can remember. Having the run of the machine-shops in the city of New York, in my vacations and odd times I learned the use of tools. Afterwards, during a part of the years 1857 and 1858, I was assistant engineer on several steamships running out of New York, since which time I have been connected with railroads, coal mines, have built shops, put machinery in them, designed machinery, superintended its construction, and performed, in connection with civil engineering, more or less mechanical work. I was born and brought up in New York city; graduated from the College of the City of New York in 1853. I pursued a scientific course there.

455 18 C. Q. What is the nature of the action of the frost on bodies with which it comes in contact? What kind of a force does it exert in upheaval of the earth?

A. I don't think the frost upheaves the earth.

19 C. Q. What is it that upheaves the earth?

A. The coming of the frost out of the ground; going in of the frost does not upheave it.

20 C. Q. Then the continual freezing and thawing of the ground around the hydrant box which you saw at Riverdale was, in your opinion, what caused the box to be raised to the extent of eight inches, was it not?

A. Yes, sir.

21 C. Q. Why was it necessary to dig up the hydrant box in order to get it back to its place? Could it not be driven back without excavating it?

A. Because the driving of it back would have forced the dirt at the bottom of the same inside the box and interfered with the action of the waste-valve.

22 C. Q. So, then, the box, when thus raised, ceases to be a protection to the valve, does it not?

A. It ceases to be a protection to the waste-valve, but not against the frost upon the upper portion of the barrel of the hydrant.

23 C. Q. In the course of your mechanical studies and experience have you not learned and observed that the action of the frost upon structures embedded or set in the ground is what is usually termed an irresistible force?

A. It is generally so denominated.

24 C. Q. Please give us some instances that have come within your observation of the effect of such force?

A. I have seen masonry broken and detached by not being
456 properly protected from frost. I have seen timber tressles raised up and put out of line by the same force.

25 C. Q. The force is exerted, however, in your opinion, when the frost goes out of the ground?

A. Yes, sir; I have tried it on monuments time and time again; never saw a monument move during the winter, but in the spring, when the frost comes out of the ground, there is always a movement.

26 C. Q. What monuments do you refer to?

A. A large number of monuments set by myself and others, staking out work, etc., made of either stone or wood, put in the ground from two to three feet, sticking above the ground from six inches to a foot.

27 C. Q. In your opinion, what is the effect of freezing upon water—that it expands in freezing?

A. It does not.

28 C. Q. When does the expansion take place?

A. Just about the time it ceases to be solid.

29 C. Q. What work on chemical physics did you read in your scientific course?

A. It is so long ago I have forgotten.

30 C. Q. Did you ever see a text book known as Cook's Chemical Physics?

A. Not that I remember.

GEO. W. BIRDSALL.

457 NEW YORK, *June* 7, 1884—10 a. m.

Present: George L. Roberts, for defendants; Edward J. Hill, for complainants.

JOHN A. WIEDERSHEIM, duly sworn as a witness in behalf of the defendants, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. John A. Wiedersheim; age, 42; residence, Philadelphia; am a solicitor of patents.

2 Q. Did you ever have any business connection with the firm of Burks, Fraser & Osgood; and, if so, what and when?

A. I did. I was the representative of that firm in the city of Washington; they had three offices—Buffalo, Rochester, and New York city. I was the representative or associate in each at Washington during the years—part of 1867, 1868, 1869, and part of 1870.

3 Q. Mr. R. F. Osgood, of Rochester, N. Y., has quoted from letter (press copy) written to you October 5, 1869. Have you the original of that letter? If so, please produce it.

A. I have the original. I produce it.

(The letter referred to is put in evidence and marked "Exhibit Osgood-Wiedersheim Letter, W. S. B., Spec. Ex'r.")

4 Q. In this letter mention is made of "accompanying affidavits." Have you made search in your files for those affidavits; and, if so, with what success?

A. I have made search and found two affidavits in the file-wrapper of Race & Mathews kept by me, said wrapper having been
458 made by me on the receipt of Mr. Osgood's letter of October 5, 1869, to contain such papers as I might have in the case. This wrapper has been in my possession ever since; I found it to contain the Osgood letter mentioned, the two affidavits mentioned, and the Patent-Office letter of rejection of December 17, 1868, which, I think, also came with the Osgood letter and affidavits. I mailed these affidavits to Mr. George L. Roberts June 3d, 1884. One of them is "Defendants' Exhibit Ward Affidavit," and the other is an affidavit of A. H. Goss, which I identify.

(Counsel for defendants introduces the latter affidavit in evidence, and it is marked "Exhibit Goss Affidavit," W. S. B., Spec. Ex'r.)

5 Q. Upon receipt of Mr. Osgood's letter of October 5, 1869, with these affidavits, what did you do?

A. I immediately made arrangements to prosecute the claim of Race & Mathews and contest the rejection. I went to the examiner, Mr. T. C. Connolly, and made my statement, based on the papers received from Mr. Osgood. The examiner went into the matter carefully and, on the representations made to him through these papers which I presented to him, allowed the application.

6 Q. Were these affidavits ever placed on file in the Patent Office; and, if not, why not?

A. They were not. In those days exhibits and affidavits were rarely admitted as part of the records of applications for patents be-

fore the primary examiners. Hence, when they had done their work I took them with me and returned them to my file.

7 Q. Did you ever personally examine the model deposited in the Patent Office with the application for T. R. Bailey's, Jr., patent of March 10, 1868, referred to in the letter of rejection?

459 A. I do not remember ever examining or seeing said model.

By Mr. HILL: We object to the foregoing deposition and the contents of the several exhibits, respectively, as immaterial and incompetent. We, however, ask the examiner to mark the letter of rejection "Exhibit Commissioner's Letter of December 17, 1868," and offer the same in evidence.

Cross-examined:

8 C. Q. How long have you been a solicitor of patents?

A. Almost nineteen years.

9 C. Q. How long were you located at the city of Washington as such?

A. In the spring of 1863 I was in the employ of the United States as a soldier, on special duty in the War Department, and from that time until the spring of 1865 I assisted Munn & Co., solicitors of patents, in the afternoons and evenings in copying, preparing amendments, etc., and also assisted in making up the Patent Office Report of 1863. In the summer of 1865 I received a full appointment at the office of Munn & Co. to take charge of the prosecution of all applications for patents of their New York office, and in the spring of 1867 I opened an office for myself and continued in that business ever since, both in Washington and Philadelphia, I, however, residing in Washington.

10 C. Q. Up to the time when you received Mr. Osgood's letter of October 5, 1869, you had conducted frequent cases pending in the Patent Office, had you not, and were familiar with the manner in which such claims were usually prosecuted, were you not?

A. Yes, sir; I might say in thousands of cases for Munn & Co., and hundreds for myself.

460 11 C. Q. On filing an original application in the Patent Office, and the payment of the preliminary fee, what was done with the application for the patent, in the usual course of business?

A. It received official action by the primary examiner, generally, in its regular turn. That was the rule of the office.

12 C. Q. While the application was pending before the primary examiner, was it usual or customary for the applicant or his representative to be present in person before the examiner, in furtherance of the application?

A. No, sir. The office discouraged—in fact, refused to hear anything concerning an application, until the examiner had rendered his decision. I believe that the rules and regulations of the Patent Office, prior to 1870, mentioned its objection to any interview until the case was examined.

13 C. Q. How, after the rendition of an adverse decision by the examiner, was it in this regard?

A. The applicant or his representative could personally attend to the matter of prosecution of a rejected claim.

14 C. Q. This, then, was the condition in which you found the application of Race & Mathews, on receipt of Mr. Osgood's aforesaid letter, was it not?

A. It was as a rejected application.

15 C. Q. You have produced the letter of the Commissioner of December 17, 1868, which you say you received with that Osgood letter; had you any knowledge or information concerning said application of Race & Mathews before the receipt of the Osgood letter and its said enclosure?

A. I had no knowledge of it; we may have had a com-
461 munication from Burke, Fraser & Osgood that they had sent certain cases to the Department; my actual knowledge of them began after official action, and Burke, Fraser & Osgood sent the rejected cases to me for prosecution.

16 C. Q. On receipt of these letters and affidavits from Mr. Osgood, please state, if you remember, what the first thing was that you did.

A. Acting under my instructions of the letter of October 5, 1869, from Mr. Osgood, I called on the examiner (Connolly) and urged the allowance of the Race & Mathews application, in view of the facts embodied in these papers—that is, Osgood's letter and the two affidavits.

17 C. Q. You then presented to Mr. Connolly, did you not, the letter of Mr Osgood and these two affidavits, viz., the Ward affidavit and the Goss affidavit?

A. I have no doubt that I did.

18 C. Q. You made no examination personally, did you, of the claims and specification, and the model accompanying the same, so as to inform yourself of the exact status of the case at that time?

A. I do not believe that I examined the papers of the application, as I had no orders to amend the claim, but simply to urge it in the condition it stood at the time of the receipt of this Osgood letter; I do not remember ever seeing or examining the model.

19 C. Q. In answer to interrogatory 5, you have stated that upon receipt of Mr. Osgood's letter "I immediately made arrangements to prosecute the claim of Race & Mathews and contest the rejection. I went to the examiner, Mr. T. C. Connolly, and made my state-
ments based on the papers received from Mr. Osgood." Do
462 you remember what statements you then made to Mr. Connolly? If yea, please state substantially what you said and did on that occasion.

A. I had nothing else to do but to contest the rejection on the facts set forth in Mr. Osgood's letter and the two affidavits. I have no doubt I urged those facts and no others. I read them to Mr Connolly, believing there were good grounds in them to secure an allowance of the Race & Mathews application.

20 C. Q. On that occasion the obstacle in the way of granting the

application was the reference made by Mr. Connolly in his communication to the Commissioner, upon which the Commissioner based his letter of December 17, 1868, was it not?

A. It must be so, judging from the name, title, and date.

21 C. Q. Then is it possible that in so important a matter as this you could have urged the examiner to reverse his decision and allow the patent without even looking at the model referred to, or the patent referred to, as anticipating the whole invention for which you were then solicitors?

A. It was not only possible but actually so. The work was done successfully. After I had presented the case in what I believed a forcible manner, when I read these papers to Mr. Connolly, possibly explaining them as I went along, I left the case in Mr. Connolly's hands, and a few days afterwards received official notice of the allowance, Mr. Connolly having rendered his decision of allowance *ad interim*, the knowledge of which was derived from the official notice of allowance.

22 C. Q. How could you intelligibly explain the matter, or add anything by way of representation or suggestion to the affidavits or letter of Mr. Osgood, when you had taken no pains to inform yourself otherwise as to the matter in question?

463 A. I do not believe I added a word of new matter to Mr. Osgood's letter, but I could explain that letter as I went along and adhere closely to the text. It was a very plain case to me, and the instructions were plain, and Mr. Connolly had only to remember what was said to him when he reached the case for decision to know whether we were right or wrong; if wrong we would have had another rejection; he must have agreed with me; hence his action passing the case.

23 C. Q. Then you did not leave the papers, viz., the Osgood letter and the two affidavits accompanying it, with Mr. Connolly pending the application?

A. No, sir.

24 C. Q. Then all that Mr. Connolly had to act upon in the consideration of this rejected claim was an oral statement made by you, based upon the facts set forth in these affidavits and the suggestions of Mr. Osgood in his letter of October 5, 1869?

A. I will not insult the memory of Mr. Connolly by saying yes; he was too intelligent a man not to look for himself, and with a certified copy of patent No. 75344, to which you have directed my attention, I am very well satisfied that he did as I would have done on reading the specification, examining the drawing of said patent, — that there was no invention set forth in that patent to prevent the allowance of Race & Mathews' application.

25 C. Q. Question repeated.

A. Mr. Connolly had the records of the U. S. Patent Office within reach. What he did between the time that I argued the case and left it with him and the allowance of the same is beyond my knowledge.

26 C. Q. Then you argued the case, did you, before him?

464 A. Mr. Osgood's letter and the two affidavits was my argument.

27 C. Q. Then your argument consisted in reading the letter and the two affidavits to Mr. Connolly, did it not?

A. That's just about what it was. I hadn't anything else to do. I no doubt emphasized some of the words, read some of the lines two or three times over, told Mr. Connolly not to forget these points, as we solicitors always have done, and then left the matter with him as a judge to think over it, look into it, and decide in the premises.

28 C. Q. You carried these papers and affidavits away with you, did you not, at that time?

A. I did.

29 C. Q. Why did you not file them in the Patent Office?

A. I can not give any reason, except to believe that they might be needed again, and so I kept them in hand—that is, they might be needed for further prosecution of the case at the Patent Office; and, furthermore, the office objected to receipts of affidavits and exhibits unless called for by the examiner, as one of the old rules and regulations of the Patent Office will show.

30 C. Q. Had Mr. Connolly, the examiner, or the Commisioner of Patents, to your knowledge, at that time called for affidavits and exhibits in this application of Race & Matthews?

A. No, sir.

31 C. Q. Can you point to any provision of the patent law or to any rule of the Patent Office authorizing the revival of the application for a patent after its rejection by the preliminary ex-
465 aminer, without the intervention in some way of the Commissioner of Patents?

A. The Commissioner of Patents has nothing to do with any application unless it is appealed to him from the adverse decision of the board of appeal, or questions of practice from the primary examiners. Sometimes the primary examiner asks the Commissioner what he would do under certain circumstances, but not as to obtaining an opinion as to reversing his decision in a rejected case, except in rare cases, where the examiner believes he has made a mistake in rejecting and wishes to correct it as soon as possible.

32 C. Q. Please look at the model now before you, marked "Exhibit Bailey Original Model," and compare it with the drawing of letters patent No. 75344, and state whether you do not discover a discrepancy between the drawing and the model in this, that the space between the top of the frost-case and bead near the base of the hydrant proper is not correctly shown in the drawing.

(Objected to as inadmissible and incompetent, the subject-matter of the question not being opened in the direct examination.)

A. I think that is a question that I should not answer. It is in the province of a mechanical expert, in which capacity I do not appear here to-day. I would require time to examine the paper and model together before I replied.

33 C. Q. But did you not urge this fact upon Mr. Connolly in

your prosecution of the rejected claim of Race & Mathews' patent, in the language of Mr. Osgood's letter of October 5, 1869.

A. I did; but simply on Mr. Osgood's letter and the affidavits, and not with the model before me.

466 34 C. Q. Then you told Mr. Connolly, did you not, that the application was refused on T. R. Bailey's patent; that Bailey lives in the same town, and took his patterns from Race & Mathews' manufactured articles?

A. I told him everything that was in Mr. Osgood's letter and those affidavits.

35 C. Q. You further told him, did you not, in the language of Mr. Osgood's letter, that "he (meaning Bailey) does not claim or show the end movement in his papers or drawings, but only in his model. In view of this accidental exhibition, we claim that we ought to have the patent without interference?"

A. I told him everything that was in that letter, as I have said several times, accepting the statements in Mr. Osgood's letter as a matter of course. At this late day, nearly fifteen years afterwards, I remember the stress I laid on the word "accidental."

36 C. Q. Why did you lay stress upon that word?

A. I must have thought it was a pretty good point against Mr. Bailey, or anybody else under similar circumstances.

37 C. Q. Please state your reasons for so thinking?

A. I have secured letters patent prior and subsequent to the time in question, where models showed things set forth in the specification or illustrated in the drawings as accidental—made by the model-maker. And when Mr. Osgood's letter was received it was a good enough argument in itself why Race & Mathews should have their application allowed in the face of the Bailey patent.

38 C. Q. And this without notice to Mr. Bailey?

A. Certainly; Mr. Bailey didn't claim it.

39 C. Q. How did you know that?

467 A. Mr. Osgood's statement that it was accidentally shown in the model.

40 C. Q. You did not examine to see whether that was the case or not, did you?

A. I accepted it as a fact.

41 C. Q. Without examination of a model or letters patent.

A. I didn't see the model. I do not believe I saw the papers at that time. I called up the case; Mr. Connolly remembered all about it. He carried his class pretty well in his head; he heard my story as per Osgood's letter, and then held the matter in obeyance for a day or two, as he must have done, considering the notice of allowance I received a few days afterwards.

42 C. Q. No notice was given to Mr. Bailey or his solicitor?

A. No, sir; the rules of practice of the Patent Office have changed since then.

43 C. Q. But did you not state that it was against one of the rules of the Patent Office for a principal examiner to receive affidavits and exhibits from an applicant unless specially called for?

A. No, sir; receiving and admitting are two different things;

we solicitors would use every argument to present affidavits, exhibits, etc., to convince the examiner that he was wrong, and while the examiner would often say, "I don't want those exhibits, etc.," he would pay respectful attention to what we showed him, and would make up his mind thereon, but under the rules refuse to admit said papers as part of the record unless called for, which was not deemed necessary in the Race & Mathews case.

44 C. Q. Are you an attorney and counselor at law?

A. I am not a member of the bar; I have never been
468 admitted, but I have passed through two terms of the law school of Columbia College, in Washington.

45 C. Q. You then urged upon Mr. Connolly that the difference between the drawing and the model to which he had referred was purely accidental, did you not?

A. I urged everything that Mr. Osgood said in his letter, especially the word "accidental," because Mr. Osgood told me so, his statements being accepted as a matter of course.

46 C. Q. So that you merely acted in a perfunctory manner and as the agent of Mr. Osgood in presenting his statements and the representations in his letter and the accompanying affidavits, with emphasis upon the word "accidental;" is it not so?

A. To some extent I acted so, but my presentation of the case in behalf of Mr. Osgood had some weight also, as I was a solicitor of patents of good standing before the department, and did not appear as a mere boy or clerk. As to the emphasis, I suppose I emphasized all that Mr. Osgood said, making it a little stronger on the word "accidental."

47 C. Q. You have been a solicitor of patents nineteen years, and yet you decline to answer my question as to this accidental difference between the drawings of patent No. 75344 and "Exhibit Bailey Original Model" on the ground that you are not an expert?

(Objected to as inadmissible and incompetent, as assuming that the "Exhibit Bailey Original Model" has any authentication in connection with what was originally of record or on deposit in the Patent Office and as misrepresenting the witness' statements in this deposition.)

A. I have not declined, in the meaning of the word declina-
469 tion, but I have said that I consider an answer to the former question one within the province of a mechanical expert, in which capacity I do not appear here to-day.

48 C. Q. You appear here as a witness sworn to tell the truth, the whole truth, and nothing but the truth, do you not?

A. When you prove that I have failed to be all that I will answer your question; I will certainly decline to answer any question like that.

49 C. Q. But you came here in the capacity of a witness, did you not, to-day; will you answer me this?

A. I did, to testify what occurred in 1869, and I have so testified. To testify concerning a model lying on this desk, of which I know nothing, I can say nothing. As to making a comparison between

it and the drawing of patent 75344, I repeat what I said, I would require time to examine the same, and still believe that I should not express an opinion as to the differences, in the light of a mechanical expert—in which capacity, as before stated, I do not appear.

Repeat your question and I will answer it as a solicitor of patents knows how, for in that capacity I was engaged in the case in 1869, urging Mr. Osgood's views on the examiner.

50 C. Q. Please examine "Complainants' Exhibits Wiedersheim Letters Nos. 1, 2, 3, and 4," and state in whose handwriting they are.

A. My own.

51 C. Q. The references in those letters, respectively, to Race & Mathews, etc., refer to the matter intrusted to you by Mr. Osgood in his letter of October 5, 1869, do they not?

A. Undoubtedly so.

JOHN A. WIEDERSHEIM.

470 NEW YORK, *June* 7, 1884.

JOHN F. WARD, a witness in behalf of the defendants, duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. John F. Ward; age, 54; residence, Jersey City, New Jersey; civil engineer.

2 Q. How long have you followed the profession of civil engineer, and what office did you hold in connection therewith in 1867?

A. Over thirty years. In 1867 I was engineer and superintendent of the Jersey City water-works.

3 Q. I show you a letter, the printed head of which is "Superintendent and engineer's office, Jersey City water-works." Please examine it and state who wrote it.

A. I wrote it at that date, February 6, 1867.

4 Q. Did you receive from the Niagara Manufacturing Company, of Lockport, New York, the sample fire-hydrant ordered by this letter?

A. I did.

5 Q. Do you remember whether you had ever previously received any fire hydrants or hydrant from that company, or whether the one received in response to this order was the first?

A. This one was the first.

6 Q. It appears from the minutes of the board of water commissioners of Jersey City for the years 1866–'7 of the regular meeting held March 4, 1867, that among the claims presented was one from "Niagara Manufacturing Company, $35," and from the minutes of the regular meeting held March 18, 1867, it appears that among the claims reported correct and ordered paid was one from
471 "Niagara Manufacturing Company, $35." Are you able to testify what was the character of this claim so presented and allowed?

A. That must have been for one fire-hydrant.

7 Q. Do you remember purchasing from the Niagara Manufacturing Company any further hydrants; and, if so, how soon after the sample hydrant referred to?

A. I recollect trying some after this first transaction, within a few weeks after buying the sample.

8 Q. Have you, in company with the examiner, Mr. William S. Beaman, examined the hydrant marked "Exhibit Race & Mathews' Hydrant;" and, if so, how does it compare in construction with the sample hydrant which you received from the Niagara Manufacturing Company in response to your order of February 6, 1867, and with the other hydrants procured from that company a few weeks after?

A. I have seen that hydrant mentioned. It is the same as the sample hydrant, with the exception of the bottom joint, which I think I had altered from the sample. This appears to be one of those that were ordered a few weeks after the sample was received.

9 Q. What is the peculiarity of the bottom joint referred to which thus distinguishes the hydrants received a few weeks after the sample from the sample itself?

A. I had the bottom joint altered from the sample to a spherical joint, the joint where the horizontal pipe from the main attaches to the hydrant. The change was from a plain cylindrical joint to a spherical joint.

10 Q. I show you a paper, which is marked "Defendants' Exhibit Ward Affidavit," and ask you whose signature is appended thereto?

A. My signature.

472 11 Q. Do you find any other matter in your handwriting besides the signature?

A. Part of the date is in my handwriting, viz: "10th" and "March." Space was left for filling in these dates, and I filled them in before signing the affidavit.

12 Q. In this affidavit reference is made to hydrants purchased of the Niagara Manufacturing Company by the Jersey City waterworks in or during the months of March or April, 1867, one or more of which you therein state you first saw on or about the 10th day of March, 1867; to what hydrant or hydrants did you there have reference?

A. To the best of my recollection, I referred to the sample that was first bought.

Cross-examination waived.

JOHN F. WARD.

Adjourned to Monday, June 9, 1884, at 10 a. m.

473 NEW YORK, *June* 9, 1884.

Present: Edward J. Hill, for complainants; George L. Roberts, for defendants.

JAMES D. KEEGAN, a witness in behalf of the defendants, duly sworn, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. James D. Keegan; age, 62; residence, New York city; foreman of repairs of the water-works in New York city.

2 Q. How long have you been foreman of repairs of the water-works in New York city?

A. About forty years.

3 Q. Do you remember Albert Chesebro, formerly of New York city and now living in Jersey city; and, if so, what was his business when you first knew him and where did he carry it on?

A. I knew him; he was a carpenter and builder; he carried on his business in Duane street, between Hudson and West Broadway, on the south side of the street.

4 Q. Do you remember to have procured from him anything on account of the water department; and, if so, what?

A. I can't say that I received anything from him; I received my material from the pipe-yard after he delivered it to the pipe-yard.

5 Q. Do you remember Mr. Albert Chesebro furnishing material to the water-works; and, if so, what?

A. Yes, sir; he furnished wooden stop-cock boxes and wooden hydrant boxes.

474 6 Q. Did you, as foreman of repairs, use any wooden hydrant boxes so made and furnished by Mr. Chesebro?

(Objected to as leading and immaterial.)

A. Yes, sir.

7 Q. What use did you make of them?

A. Put them around the fire-hydrants to keep them from freezing, I suppose, and protection to the waste-valve.

8 Q. Please look at the wooden structure, marked "Exhibit New York Hydrant Box," and state how it compares with the hydrant boxes which you so used at the time Mr. Chesebro used to make them for the water-works department of New York city.

A. That is similar to the ones we were using all the time—about the same form—same shape.

9 Q. To what kind of hydrants were these boxes first applied?

A. To the Ayres fire-hydrant; that is the exact model (referring to "Exhibit Board Model New York Hydrant"), and we are using the same thing to-day.

10 Q. Before these boxes began to be applied to the Ayres fire-hydrant, had such hydrants been used without such boxes; and, if so, how did they stand the action of frost in the winter season?

A. I think they had, for about two years. They didn't stand it very well; the hydrants broke below the flange; the lifting power of the frost broke the hydrant off in the weakest part, a little below the flange.

11 Q. Since these hydrants have been protected by boxes, such as "Exhibit New York Hydrant Box," what have you observed as to the action of the frost?

A. It protects the hydrant from breaking off.

475 12 Q. And how does the frost affect the box itself?

A. It raises it up considerably.

13 Q. What have you been accustomed to do in respect to such boxes which have been thus raised by the frost?

A. Send a man around with a light crowbar with a flat head to strike them down, stave by stave, to their proper place.

Cross-examination waived.

JAMES D. KEEGAN.

NEW YORK, *June* 9, 1884.

SAMUEL R. C. MATHEWS, a witness in behalf of the defendants, being duly affirmed, deposes and says:

1 Q. What is your name, age, residence, and occupation?

A. Samuel R. C. Mathews; age, 55; residence, Philadelphia, Pa.; manufacturer of fire-hydrants in connection with R. D. Wood & Co., of Philadelphia.

2 Q. What profession did you follow before engaging in manufacturing?

A. I was a civil engineer; I spent some years in mercantile business.

3 Q. Where and when did you engage in manufacturing, and with whom?

A. At Seneca Falls, N. Y., in 1857, with Washburn Race, under the style of Race & Mathews.

4 Q. State the places and times of the continuance of manufacture, the styles of the business firm or corporation with which you were connected, and the principal articles of manufacture.

A. In September, 1860, we removed our works to Lockport, N. Y.; carried on business there under the style of Race, Mathews & Co. until October 18, 1864. Then as the Niagara Manufacturing
476 Company, incorporated under the general manufacturing laws of the State of New York, from October 18, 1864, until August, 1868. The business was carried on by Helen M. Lloyd from that time until the summer of 1869. From the summer of 1869 until the spring of 1870 I carried on the business myself of selling fire-hydrants, having them made by Alexander Pound, of Lockport, N. Y.; since the spring of 1870 and up to the present time under the style of R. D. Wood & Co., of Philadelphia; my partnership with them extends only to the manufacture of hydrants; we commenced to manufacture force-pumps at Seneca Falls at the same time we were getting up a fire-hydrant, and made a few at that time while we were there; during all the time we were at Lockport, under the different style, we manufactured different styles of pumps, also hydrants, and added other manufactures from time to time, such as cast-iron sinks, thimble-skeins, and boxes, skates, steam-engines, flax-cotton machinery, and general jobbing work in addition to our regular manufacture.

5 Q. You have mentioned Washburn Race; is he now living; if not, when and where did he die?

A. He did ten or twelve years ago in Fulton, Oswego county, N. Y.

6 Q. Who constituted the firm of Race, Mathews & Co., which succeeded that of Race & Mathews?

A. Washburn Race, Samuel R. C. Mathews, and William P. Daniels.

7 Q. Is William P. Daniels now living; if not, when and where did he die?

A. He is dead. He died at Lockport, N. Y., about fifteen years ago, I think.

8 Q. Who were the principal managers of the business carried on by the Niagara Manufacturing Company at Lockport, N. Y.?

477 A. Mr. Race and myself had almost entire management of the business; Mr. Race, the superintendent, and I was secretary and treasurer; Cromwell J. Lloyd was president of the company; he gave very little attention to the business.

9 Q. Is Cromwell J. Lloyd now living; if not, when and where did he die?

A. He is dead. He died about four or five years ago at Toledo, Ohio.

10 Q. You have mentioned the manufacture of hydrants by Race & Mathews at Seneca Falls; if that manufacture was under any patent, state when and to whom granted.

A. It was under a patent granted to Washburn Race and Samuel R. C. Mathews, No. 19206, of January 26, 1858, for improvement in hydrants.

11 Q. How did the hydrants which you actually manufactured at Seneca Falls compare in details of construction with the drawings of your said patent?

A. The principal difference is in the method of operating the valve-rod. In the model sent to the Patent Office the rod and connected valve were operated with an eccentric or cam at the top. During the time our patent was pending, and before we had made any hydrants, we concluded that this arrangement would shut off the water to suddenly; we therefore substituted a revolving or sleeve nut, working in a thread on the rod, so that the hydrant valve would be opened and closed gradually, to prevent what is called "water hammer," which tends to burst the pipes and to start the joints. We first made three hydrants with elbows, as shown in the drawing. In all our manufacture after that, and up to the present time, we have used what we called a large flat elbow, the principal

478 object of which was to enable us to get our valves and waste nearer to the level of the supply-pipe; incidently we found it an advantage, facilitating the setting of the hydrant perpendicularly. In all other material respects they have been the same during all the time that we have manufactured—I mean by this that all the hydrants that we have made have been provided with a loose, detached case, forming a dead air chamber around the hydrant, allowing the hydrant to be taken up for repair without excavating, and in case of breakage that either the hydrant stock or the case or both could be replaced without disturbing the elbow; also, having the waste-valve and main or puppet valve so attached to the rod as to have a positive motion, whereby the waste was closed as the

main valve was opened, and the waste was opened as the main valve was closed, making what is known as a positive waste.

12 Q. Did you prepare any advertising sheet to illustrate your hydrant manufacture; and, if so, when first, what was it, and how do you fix the date?

A. In August, 1860, I made the drawings of the hydrant, both sectional and elevation, for the use of the lithographer in making the lithograph of the hydrant. I refresh my memory in regard to the date by reference to the cash-book of Race, Mathews & Co., where I find the following entries: "August 29, 1860, by expense ac't, express on hydrant drawing to Sage & Son, 25 cts.; also, October 3, 1860, by expense ac't, paid express on hydrant lithograph, 25 cts.; also, October 8, 1860, by expense ac't, paid J. Sage & Sons, draft on us, $66." From this drawing the first lithograph we ever had of our hydrants was made. The above entries refer, as stated, to the express paid on drawing and the lithograph and the amount
479 of Sage & Son's bill for these lithographs. These entries are made in my own handwriting, and I know them to have been made at the times stated and in the regular course of business.

13 Q. Is there a copy of that lithograph still in existence?

A. I know of but one; this is the copy that I refer to; there may be others in existence, but I do not know of them. I found this at the office of the Utica Water-Works Co., at Utica, N. Y., a few weeks since in the possession of Marmaduke Clark, an official of the company—superintendent of pipe-laying, I think. I recognize this as one of the first lot of lithographs made; it is the "Exhibit Race, Mathews & Co. Lithograph."

14 Q. Who prepared the manuscript of the letter-press upon this lithograph?

A. I did.

15 Q. I call your attention to the following from that letter-press: "3d, the frost cannot leave the hydrants, as the outside case E is detached and has room to play up and down two inches, thus accommodating itself to the ground without disturbing the hydrant H or breaking the connection." Had you, previously to the preparation of this lithograph in October, 1860, made such provision as is thus referred to in the hydrants of your manufacture?

(Objected to as leading.)

A. I notice that the quotation you have made says: "The frost cannot leave the hydrant." It should be "heave." In all the hydrants that we had made previously there had been some space for the casing to move, which we considered a mechanical necessity, in order to be certain that we could screw the hydrant stock
480 down firmly onto its seat in the base without being prevented by the length of casing from so doing. In our earlier manufacture this distance had been about one inch. We afterwards lengthened the flange on what we call the ground base of the hydrant, making it, as shown in this lithograph, the object being to facilitate the setting of the hydrants at varying grade of side-

walks, so as to present a better appearance. In doing this we naturally increased the space for the movement of this casing, so that it was about two inches, and although we had not claimed this feature in our patent, we felt that we were entitled to all the advantages of construction which we could show to our customers. This led us to inserting that third article in the letter-press.

16 Q. How did the manufacture of hydrants, which was carried on by Race, Mathews & Co., compare in construction with the hydrant shown and described in the "Exhibit Race, Mathews & Co. Lithograph," and especially in regard to the feature of the third article of the letter-press, which I have quoted?

A. They were the same as shown on the lithograph, in every respect, as far as I can see.

17 Q. If there was any variation in practice in the amount of end play provided for the hydrant case, what was the extent, and to what was it due in those hydrants manufactured by Race, Mathews & Co.?

A. We found some variation, usually about a quarter of an inch. In making this base flange, as we term it, it is necessary to set a core to form the inner surface of the casting. If this core was set a little too far up towards the upper end of the hydrant, there was danger of making the casting too thin, and consequently the moulders would usually go to the other extreme and set the core below its proper position, giving unnecessary thickness to
481 the casting at the top of the flange, and, of course, reducing the space inside the flange proportionally.

18 Q. Have you had constructed an illustrated full-sized model showing the relationship of the important parts of the hydrant such as was manufactured by Race, Mathews & Co., after "Exhibit Race, Mathews & Co. Lithograph" was made? If so, please produce it and state what it represents.

A. I have, and this is such a model; the general outline of the hydrant is shown in section, while the upper and lower portions (top and bottom) of the case are shown in full, showing their connection with these parts—their relative position. This model was made from working drawings of the full size of the hydrant; this frame which connects the top and bottom portions of the case is not a part of the case, but is simply intended to connect these parts firmly and show the action of the case. I have reason to believe that they are correct in every detail and made strictly according to the drawings, as far as I can see.

(Objected to as immaterial and incompetent.)

(Counsel for defendants puts the illustrative model in evidence, and the same is marked "Exhibit Board Model Race & Mathews' Old-Style Hydrant.")

(Objected to as immaterial and incompetent.)

19 Q. Did the Niagara Manufacturing Company continue to make the hydrants represented by "Exhibit Race, Mathews & Co.,

Lithograph" and illustrated by "Exhibit Board Model Race & Mathews' Old-Style Hydrant;" if so, until about what time?

A. They did, until some time during the year 1866.

20 Q. How extensively were such hydrants made and put into use up to that time, and what were some of the principal places where they were so put into use?

482 A. I could not state definitely as to the number; there were probably several hundred; we didn't do much in hydrant manufacturing in those years; they were put in the city of Lockport, N. Y.; Auburn, N. Y.; Brooklyn, N. Y.; Buffalo, N Y.; Utica, N. Y.; and some I think in Poughkeepsie, N. Y.; those were the principal places that I remember now.

21 Q. When and under what circumstances did Mr. Washburn Race and yourself provide for a change of construction of hydrants, and what was the change?

A. Early in the year 1866—I could not set the time of year definitely, only that it was as early as March—we decided to change the form of the upper part of the case, so that the upper end would pass outside of the body of the hydrant instead of under the projecting flange or hood, as in our previous manufacture.

22 Q. What did you first do toward effecting this change, and if you have any original memorandum relating thereto, please refer to the same?

A. In the cash-book of the Niagara Manufacturing Co., I find certain entries relating to an alteration in the lithograph. Under date of March 28, 1866, "by expense account, expenses to Buffalo, $1.75; April 4, 1866, by expense account, expenses to Buffalo, $1.70." During one of these two visits I gave instructions to Sage, Sons & Co., in regard to the alteration of our old lithograph, so as to show the upper part of the case passing outside of the body of the hydrant at the surface of the ground. I find, under date of May 10, 1866, in the cash-book referred to, "by Sage, Sons & Co., paid their draft $173.25." This bill included lithographic letter and bill-headings, in addition to the cost of the altered lithographs made from

483 the altered stone. This alteration was merely in the sectional view of the hydrant on the lithograph, showing the case passing up on the outside of the hydrant, without making any change in the general form of the hydrant. There was some change in the letter-press, substituting Niagara Manufacturing Co. for Race, Mathews & Co., and in the small letter-press at the bottom of the lithograph, beginning with 3d, the substitution of "six inches" for "two inches." These entries were made by me at the time specified and in the regular course of business. I produce a copy of the lithograph as altered.

(Counsel for defendants puts in evidence the lithograph as altered, and the same is marked "Exhibit Niagara Manufacturing Co. Lithograph," W. S. B., Spec. Ex'r.)

I would like to add that there was a slight change in the elevation shown in the upper end of the case corresponding in position to the base or ground flange, deeper than in the former lithograph,

and passing a short distance below the ground. The section shows the same feature.

23 Q. What use did you make of these altered lithographs like "Exhibit Niagara Manufacturing Co. Lithograph?"

A. We used very few of them, as they did not fully illustrate the change in the construction we made in the hydrants, and I think only used them when it was possible to personally explain such such difference.

Adjourned to June 7, 1884, at 10 a. m., W. S. B., Spec. Ex'r.

484 NEW YORK, *June* 9, 1884.

Present: George L. Roberts, for defendants; Edward J. Hill, for complainants.

Direct examination of Samuel R. C. Mathews, continued by Mr. ROBERTS:

24 Q. What did you next do after causing the lithograph to be so altered?

A. We made the working drawings for the pattern-maker for him to work by.

25 Q. Go on and state what was done by the pattern-maker, who he was, and when the work took place?

A. The patterns were made by Jared M. Gleason. The only memorandum of the time that I have is that taken from the book we gave him in which to keep a record of his day's work, what the work was, and what it was on. From that book it appears that the work was done in the latter part of May and during the month of June.

26 Q. State just what the character of the work was which he did.

A. It was altering the pattern of the hydrant so that the upper portion of the casing passed on the outside of the body of the hydrant at the surface of the ground, which was made cylindrical, so as to form a telescopic joint and allow for the upheaval of the case, without losing our dead air chamber, and by this means permitting any elevation of the hydrant case due to the action of frost, to be readily perceived, and the case driven back to its place without taking out the hydrant.

28 Q. Are you able, from your own recollection of events,
485 to state independently of the time-book kept by Jared M. Gleason, during what year and what season of the year this alteration of the hydrant patent was made?

A. I remember it was very soon after the alteration in the lithograph, and know that it must have been about the time in which he testified he did the work. It was in the spring of 1866—that is, the alteration of the lithograph. On my return from Buffalo, Mr. Race and myself took the matter into consideration, and settled definitely as to the details of the alteration, and I do not think that there was any material delay in getting ready our working drawings. I might here say that we concluded that the alteration I had made, as shown in the lithograph, was objected to by Mr. Race on account of the bad appearance it would give the hydrants, provided the case was

lifted several inches above the proper position, spoiling the appearance of the hydrant. We then settled upon the form of construction as shown in "Exhibit Race & Mathews Hydrant."

29 Q. When was the first hydrant made from the altered patterns, like "Exhibit Race & Mathews Hydrant?"

A. I do not know, definitely, when the first work was done. My recollection is that a few of them were started, and work done from time to time on them, but when I couldn't say. I should think, probably, within a month or two after finishing the patterns.

30 Q. When did the Niagara Manufacturing Company first make effort to solicit orders for hydrants of the new construction, like the "Exhibit Race & Mathews Hydrant?"

A. The first efforts were made by Cromwell J. Lloyd, the president of the company—I think in December, 1866. Mr. Lloyd
486 made a trip to several Western cities with the intention of extending our business, and also to call attention to our new hydrant; I fix the date by certain entries in the cash-book of the Niagara Manufacturing Company, in which C. J. Lloyd is charged with cash $150, and afterwards credited with the same amount as having been expended in the service of the company. The entries are as follows: "Dec. 1, 1866, by C. J. Lloyd, c'k, for trav. expenses, $150; Jan. 2, 1867, by expense account, Lloyd's expenses to St. Louis, Chicago, etc., $150."

31 Q. Did you make personal effort to introduce and sell the new hydrant like "Exhibit Race & Mathews' Hydrant," and if so, when first?

A. I did; in the month of January, 1867; I find an entry in my cash-book under date of January 26, 1867, as follows: "By expense account, Mathews' exp. to Balt., Phil., New York, etc., $126.75." These were expenses incurred by me in a visit which I made to Baltimore, Philadelphia, New York, and several other cities at that time for the purpose of introducing the hydrant.

32 Q. By whom were the entries referred to in the last two preceding answers made, and at what time?

A. They were made by me, on the respective dates given, in the regular order of business.

33 Q. Are you able to assign a date when a hydrant constructed from the altered patterns and like "Exhibit Race & Mathews Hydrant" (not taking into account the peculiar hemispherical joint at the end of the elbow of this exhibit) was actually shipped from the shop of the Niagara Manufacturing Co. complete and ready for use?

A. I am; we shipped such a hydrant on December 28, 1866, to George W. Wilson, No. 16 Court-House, Chicago, Ill. I have
487 here the original receipted bill of lading for the same, signed by M. G. Lampkins, agent of the New York Central R. R. Co. at Lockport, New York.

Counsel for defendants puts the said receipt in evidence, and the same is marked "Exhibit Railroad Receipt No. 1, W. S. B., Spec. Ex'r.

34 Q. What was the condition of the business of the Niagara Manufacturing Co. during the latter half of the year 1866?

A. We were doing considerable work, but losing money very rapidly in our new business which we had added, building steam-engines. In other branches of work we were doing but little.

35 Q. Did the Niagara Manufacturing Co. have a sales-book in which was entered the account of sales of its manufactures? If so, when and under what circumstances did you last see it?

A. It did. I saw it last in Boston, in 1876, at the time we were taking testimony there.

36 Q. Do you know what has become of it, and what efforts have been made to obtain it again?

A. I do not; have not been able to get any trace of it. I suppose it possible that it might have remained in possession of our counsel in Boston, or possibly sent to Washington with other books used in that trial. My counsel informs me that he has made diligent search for it and has not been able to find it. I believe it is lost.

37 Q. Did you refer to that sales-book in the course of your former deposition, taken June 15, 1876, in the case of Samuel R. C. Mathews *et al. vs.* The Boston Machine Co. *et al.*, then pending in the circuit court of the United States for the District of Massachusetts?

A. I did.

38 Q. Will you please quote from a certified copy of that
488 deposition, which I now hand, you, the entries which you took from that sales-book on the occasion of your said former deposition?

A. I will; they are as follows:

"Dec. 28, 1868. Geo. W. Wilson, 16 Court-House, Chicago, Ill., 1 No. 1 fire-hydrant, as sample."

"Jan. 2, 1867. B. F. Fox, Springfield, Ill., 1 No. 1 fire-hydrant, as sample."

LOCKPORT, 1867.

Feb. 9. Winsor Bros. & Minnies, Oil city, Pa.:

1 No. 1 fire-hydrant (new pattern)	$40 00
Shipped Jan. 21 (less 10 %)	4 00
	$36 00
C'tg	25
	$36 25

Feb. 11, 1867. Jersey City Water-Works Co., per order of —— Ward, Esq., sup't and eng'r:

1 No. 1 fire-hydrant (new pattern)	$35 00

Feb. 27, 1867. Elmira Water-Works Co., per I. S. Hobbie, sup't:

1 No. 1 fire-hydrant	$40 00
Sample (less 10 %)	4 00
	$36 00

Jos. O. B. Webster, ass't eng'r Croton water-works, Croton aqueduct dep't:

1 No. 1 fire-hydrant.
1 " " (with cut-off).
Samples.

489 39 Q. Please explain these entries and state to what they refer, and the significance of the word "sample," together with the fact that in some of them no price is carried out.

A. They refer to the sale of the new style of hydrant we were then trying to introduce, and those marked as "samples" were not actual orders, so far as relates to the hydrant sent to George W. Wilson, B. F. Fox, and Joseph O. B. Webster; that to the Elmira Water-Works Co., to which a price is attached, was to be paid for at the price mentioned in case the hydrant proved satisfactory. The entries under date of February 9 to Winsor Bros. & Minnies and that of February 11 to the Jersey City Water-Works Company were actually orders and entered as such in the sales-book. The sample orders were entered in another part of the book with other sample goods, and our rule was, if they were accepted and paid for, to transfer them into the regular sales.

40 Q. What do you know of the history of the fire-hydrant charged to the Elmira Water-Works Co. Feb. 27, 1867?

A. The hydrant referred to was shipped from Lockport Feb. 27, 1867, to the Elmira Water-Works Co., per order of I. S. Hobbie, superintendent. During the time our suit was pending against the Boston Machine Co. I went personally to Elmira to see if I could identify this particular hydrant; I saw Mr. Hobbie there; told him the object of my visit; he said the hydrant was still in use; he showed me entries on his memorandum or cash book in relation to the payment of freight and cartage on the hydrant; that he knew where it was set and would take me to see it. We visited the location; saw the hydrant and at my request he marked the hydrant with a cold
490 chisel for the purpose of future identification, in case we wished to produce the hydrant in evidence. The hydrant was afterwards taken up and used as an exhibit, "Complainants' Exhibit 8," in that case. It was used in Boston at the time of the argument before Judge Shepley; afterwards in Washington before the Supreme Court, at the time of the argument of the case on appeal. After the case had been argued I was making arrangements to have the hydrant transferred to the consulting room, and one of the officials notified me that the judges did not want those heavy exhibits in that room, and that they must be taken outside the building. I had this hydrant, with two or three others, piled near the steps on the east side of the Capitol; left them there and came away. That is the last I ever saw or heard of them. We have never been able to get any trace of them. We have made every effort to obtain that "Exhibit 8," but without success."

(Answer objected to as incompetent.)

41 Q. How did that Elmira hydrant, which was "Exhibit 8" in the former case, compare in construction with the exhibit in this case, "Race & Mathews Hydrant?"

A. It was just the same and made from the same patterns, with the exception that the elbow of the Elmira hydrant was made with the ordinary or usual bell end, while that of the "Exhibit Race & Mathews Hydrant" was made with a hemispherical bell, by request of the engineer and superintendent of the Jersey City water-works, Mr. John F. Ward.

42 Q. Have you any other memorandum than the copy of the entry from your sales-book relating to the first hydrant like
491 "Exhibit Race & Mathews Hydrant," sold to the Jersey City water-works; and, if so, what is it?

A. I have the original railroad receipt of the New York Central R. R. Co., signed by M. C. Lampkins, agent, dated Lockport station, Feb. 11, 1867.

(Counsel for defendants puts the receipt referred to by the witness in evidence, and the same is marked "Exhibit Railroad Receipt No. 2," W. S. B., Spec. Ex'r.)

43 Q. What was the character of the bell end of elbow of the first hydrant sent to Jersey City as compared with the elbow of "Exhibit Race & Mathews Hydrant?"

A. The first hydrant sent had an ordinary elbow, with the usual bell end for receiving the pipe from the main. On the subsequent hydrants the elbows were made with the spherical enlargement in the bell end, known usually as Ward's joint.

44 Q. Have you here present the original railroad receipts for the other hydrants like "Exhibit Race & Mathews Hydrant," sent to the Jersey City water-works during the spring of 1867? And, if so, state the dates which they respectively bear and the number of such hydrants covered by each.

A. I have three such original receipts, one dated March 21, 1867, for three fire-hydrants; one, April 10, 1867, for five fire-hydrants; and one, April 16, 1867, for three fire-hydrants.

45 Q. Testimony has been introduced showing that the board of water commissioners of Jersey City, on March 18, 1867, allowed a claim of the Niagara Manufacturing Co. for $35. On April 18, 1867, another claim for $92.40. On June 3, 1867, another claim for $280. How do these amounts correspond to the prices for
492 which the dozen hydrants mentioned in the railroad receipts, to which you have referred, were sold to the Jersey City water-works?

A. The hydrants were sold at $35 each, *free* on board the cars at Lockport. On the second invoice, before auditing our account, they deducted freight on them to Jersey City. This was not according to our understanding, but we did not think it worth while to try to get the additional amount passed upon. My recollection is that we simply called their attention to it and restated the terms. The full amount for the dozen hydrants, at $35 each, was $420. We received

in the aggregate $407.40 and suffered a loss of $12.60, which they deducted for freight on one shipment.

46 Q. Did you, at the time of having the sales-book of the Niagara Manufacturing Co. in your possession, eight years ago, copy therefrom any memorandum relating to sales of hydrants like the "Exhibit Race & Mathews' Hydrant" during the year 1867; and, if so, have you the memoranda so copied from that book at that time?

A. I made such a memorandum and I have a copy of that memorandum. The original was badly worn and I recopied it. It contains a list of hydrants sold by the Niagara Manufacturing Co. during the year 1867. These were all of the new pattern, unless possibly a very few of the old style might have been included.

47 Q. Refreshing your memory by this memorandum, please state the number of hydrants sold from time to time during the year 1867, with the dates of sale, to whom sold, and the number sold to each.

A. They were as follows:

493

Date.	Purchaser.	Number.
1867.		
Feb. 11.	Jersey City	1
" 27.	Elmira (I. S. Hobbie)	1
M'ch 21.	Jersey City	3
Apr. 10.	"	5
" 16.	"	3
May 6.	Utica, N. Y.	1
" 20.	Brooklyn	20
" 21.	Oil City (W. Bros. & M.)	2
" 28.	Auburn, N. Y.	4
" 30.	"	26
June 20.	New York city	6
" 22.	Brooklyn	40
July 6.	Oil City (W. Bros. & M.)	3
" 10.	Brooklyn	40
" 13.	Syracuse, N. Y.	20
" 29.	Lockport	1
Aug. 10.	Brooklyn	40
" 15.	Utica	1
" 17.	Rochester	100
" 26.	McFee Swift	1
Sept. 2.	New York city	6
" 2.	Poughkeepsie	1
" 3.	New York city	6
" 5.	"	6
" 14.	Minneapolis	20
" 30.	Gouverneur, N. Y.	7
Oct. 3.	New York city	24
" 10.	Brooklyn	50

Oct.	10.	Jersey City	6
"	7.	Poughkeepsie	8
"	9.	Auburn	6
"	19.	Lockport (J. Clapham)	3
"	25.	Auburn	5
"	31.	"	1

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Nov.	6.	Springfield, Mass.	4
"	7.	New York city	36
"	9.	Elmira, N. Y.	3
"	11.	Utica, N. Y.	5
Dec.	9.	Springfield, Mass.	1
		Total	516

48 Q. Of what construction were the four hydrants sold to Auburn, N. Y., May 28, 1867, and the twenty-six hydrants sold to the same city, May 30, 1867?

A. I think those were all from the new pattern. We may, if we had any of the old stock on hand, have possibly put in a few of them to work them off. I cannot state positively that any of the old style were sold in 1867.

49 Q. It appears in evidence that you and Mr. Washburn Race made application for the patent No. 96959 on the 29th of Oct., 1868, and that on the 17th of Dec., 1868, a rejection was declared by the Patent Office, on reference to the model belonging to the patent of T. R. Bailey, Jr., dated March 10, 1868. Do you remember the circumstances of being informed of this rejection?

A. I do.

50 Q. What action did you personally take about it?

A. I called to see Mr. Bailey. I won't undertake to repeat the conversation; it is a good many years since. I can give the substance of it; it was that Mr. Race and myself had applied for a patent on an outside casing having end play, and it had been rejected on reference to his model, and I asked him to sign a disclaimer as to any invention in that feature, as he knew that we, Mr. Race and myself, were the inventors of it, but he refused to do anything in the matter.

495 51 Q. State briefly what you finally did in this matter, and in answering you may refresh your memory by reference to your letters to Burke, Fraser & Osgood of July 23, 1869; August 14, 1869; August 23, 1869; August 27, 1869; October 27, 1869; October 29, 1869; and the letters of Burke, Fraser & Osgood or R. F. Osgood to you of August 26, August 31, and October 21, 1869, all of which have been put in evidence.

A. I obtained affidavits from two or three parties, I think, who had these hydrants in use early in the year 1867, and forwarded them to my patent solicitors to be presented to the examiner in the case. I have here two of the affidavits which were used as above, one, "Defendants' Exhibit Ward Affidavit," in my own handwriting

except "10th" and "March," where I left blanks to be filled in by Mr. Ward; the other is "Defendants' Exhibit Goss Affidavit," which is not in my handwriting; I think there was another one, but, if so, I do not know where it is, or remember from whom it was obtained.

52 Q. I show you three exhibits which have been put in evidence in this case, viz., "Exhibit Mathews-Blauvelt Letter No. 1," "Exhibit Mathews-Blauvelt Letter No. 2," and "Exhibit Utica Water-Works Bill." Please examine them and state how much is in your handwriting and what was the construction of the hydrant therein referred to.

A. The letters are all in my handwriting, and the bill is all in my handwriting except the words "Paid by Utica steam cotton mills." The letters and bill refer to one fire-hydrant shipped at Lockport, May 6, 1867, by the Niagara Manufacturing Company to the Utica Water-Works Company, Utica, N. Y.; the hydrant was the same in construction as "Exhibit Race & Mathews Hydrant."

496 53 Q. Reference has been made to the suit of Samuel R. C. Mathews *et al. vs.* The Boston Machine Co. *et al.*, begun in the circuit court of the United States for the district of Massachusetts. Please state when that suit was begun, when the testimony was completed, when it was argued before Judge Shepley, when the appeal was argued and decided in the Supreme Court.

(Objected to, as the records are the best evidence.)

A. The bill of complaint was filed January 28, 1873; the testimony was completed June 19, 1876; the bill was dismissed by Judge Shepley October 5, 1877; it had been argued in the fall of 1876; it was argued before the Supreme Court on appeal during the winter of 1880–'81—I think in March, 1881; the decree of the circuit court was affirmed during the winter of 1881–'2.

54 Q. What were the patents sued upon in that case and what was the structure manufactured by the Boston Machine Company, complained of as an infringement of those patents?

(Objected to as immaterial and incompetent.)

A. One of the patents sued upon was reissue No. 4887, granted April 30, 1872, to Washburn Race and S. R. C. Mathews for improvement in hydrants, the original patent being No. 19206, dated January 26, 1858, and the other patent sued upon was No. 96959, granted November 16, 1869, to Washburn Race and S. R. C. Mathews, assignors to S. R. C. Mathews, for improvement in hydrants. The hydrants manufactured by the Boston Machine Company, which were sued as infringements of these patents, were of the construction illustrated by this "board model."

(Counsel for defendants puts the board model referred to by
497 the witness in evidence, and the same is marked "Exhibit Board Model, Boston Machine Company Hydrant," W. S. B., Spec. Ex'r.)

55 Q. What do you know of the history of this identical thing here marked "Exhibit New York Hydrant Box?"

A. It is the identical box used in the former suit against the Boston Machine Company and there marked "Complainants' Exhibit No. 7." I saw it in evidence in the court-room at Boston when the case was argued before Judge Shepley, and also at Washington during the argument of the appeal before the Supreme Court. It was returned to me, among other exhibits, from Washington, and has been in our possession ever since until produced in this case.

56 Q. Did Thomas R. Bailey, Jr., to whom reference has been made, ever visit the shop of the Niagara Manufacturing Company during the years 1866 and 1867; and, if so, how frequently?

(Objected to as immaterial.)

A. He did. I could not say just how often, but he was there very frequently and was quite intimate with Mr. Race, and I often saw them together at Mr. Race's office. They are both inclined to gossip a little about business and machinery, and there were no restrictions whatever about any one coming or going to any portion of the shop. I had but little conversation with Mr. Bailey myself in those times. I remember distinctly seeing him and Mr. Race together in those times quite often. We did some work for him occasionally in the way of furnishing him with castings, but I know that his visits were much more frequent than called for by any business affairs. To sum it all up, I should call him a frequent visitor.

498 57 Q. What opportunity did such a visitor have to see the alteration of the hydrant patterns in the summer of 1866 and the manufacture of hydrants like "Exhibit Race & Mathews Hydrant," up to, say, the 1st of July, 1867?

(Objected to as immaterial and incompetent.)

A. Every facility possible. As I said before, there was no exclusion of people from any part of our works. Both the pattern work and machine work were carried on publicly, so far as any restrictions to visitors was concerned. In addition to this Mr. Race spent nearly all his time in the pattern room, and most visits to him were made there. He was a pattern-maker and wood-carver himself, and spent all the time possible in that department.

Adjourned to June 10, 1884.

JUNE 10, 1884.

Present: Counsel as before.

58 Q. You have already, in your list of hydrants sold during 1867 mentioned one of the date July 29, to city of Lockport. What do you remember about that particular hydrant? And, if you have any memorandum relating thereto by which to refresh your memory, state what it is.

A. I remember that it was used to replace a broken hydrant in front of the bookstore of O. C. & E. C. Wright, Main street, Lockport, N. Y. My memory is also refreshed by a memorandum which

I have in regard to it. This memorandum I took from the
499 sales-book of the Niagara Manufacturing Company at the time it was in my possession, during the suit of the Boston Machine Company. It is as follows:

JULY 29, 1867.

City of Lockport, one single-nozzle hydrant put in front of O. C. & E. C. Wright's bookstore, to replace broken hydrant	$40 00
Less for old one	10 00
	$30 00

This memorandum was made to enable me to see readily just what hydrants of the new pattern were used in the city of Lockport up to the time I left there, and includes other hydrants of the same style put in subsequently to the one referred to above.

59 Q. The plaintiffs have given in evidence, under objection, a letter of A. H. Goss to T. R. Bailey & Sons, dated September 24, 1867. Have you read that letter; and, if so, will you state any facts within your knowledge which enable you to determine what feature of the Bailey model Mr. Goss referred to in that letter?

A. I have read the letter and am satisfied that Mr. Goss could only have referred to the cylinder valve and its arrangement of waste, possibly, as he was thoroughly familiar with all the other features embraced in the model, particularly the detached frost-casing passing on the outside of the base of the hydrant and having end play to compensate for the heaving by frost, as he had ordered hydrants from us of that construction as early as May of the same year, and hence could not possibly have regarded this feature as new in the Bailey hydrant.

(Question and answer objected to as immaterial and incompetent.)

60 Q. Was the A. H. Goss who wrote this letter of Septem-
500 ber 24, 1867, the same A. H. Goss who executed for you the affidavit of September 14, 1869, "Defendants' Exhibit Goss Affidavit?"

A. Yes, sir.

61 Q. Do you remember the water-pipe extension of Buffalo street and Transit street in the city of Lockport, N. Y.; and, if so, what hydrants were furnished to be set in connection with the water-pipe of that extension, as far as you then knew?

A. I do remember. The hydrants were of our new pattern furnished to James Clapham in the fall of 1867; I refresh my memory by a memorandum which I have that was taken from the sales-book heretofore referred to.

62 Q. Did you know at that time that James Clapham procured a single hydrant of T. R. Bailey, Jr., or T. R. Bailey's Sons, and set the same at the end of that water-pipe extension on Transit street?

A. I did not.

63 Q. When did you first know of any manufacture of hydrants by T. R. Bailey, Jr., or T. R. Bailey's Sons?

A. Late in the summer of 1869.

64 Q. Under what circumstances and what did you do about it?

A. I knew that the city had ordered an extension of its water-mains and expected that they would procure the hydrants from us, as they had done previously. I did not know that Bailey had made any hydrants until I learned that James Fleming, who had the contract for doing the work for the city, had contracted with Bailey for the hydrants. I then sent letters to Albert F. Brown, mayor of the city, and to James Fleming, advising them that (counsel for complainants objects to evidence of the contents of the letters as
501 not the best evidence) the hydrants proposed to be manufactured by Bailey were infringements upon our patent of January 26, 1858. The "Exhibit Race & Mathews Fleming Letter" I believe to be the letter I wrote to James Fleming on that occasion, although I have not seen it since I wrote it, but have before me a copy of it. The letter written to Albert F. Brown was the same in its general tenor; the only difference was due to the different positions occupied by the parties, one being the mayor of the city, the other a contractor.

65 Q. When did the Niagara Manufacturing Company cease to do a manufacturing business?

A. In August, 1868.

66 Q. Was the manufacture of hydrants like "Exhibit Race & Mathews Hydrant" continued thereafter; if so, by whom, how long, and who managed the business?

A. It was continued by Helen M. Lloyd from the time the Niagara Manufacturing Company ceased to do business until some time in the summer of 1869. Such manufacture had been carried on continuously by the Niagara Manufacturing Company from the time it was organized until its dissolution. During all this time the business was managed by Mr. Race and myself. I mean up to and during the time the work was carried on in Helen M. Lloyd's name.

66 Q. Please notice that the last preceding interrogatory referred to the manufacture of hydrants like "Exhibit Race & Mathews Hydrant," and that I intended to confine it to the specific form of hydrant in which the detached case formed its upper joint outside of the hydrant body. Did you bear that in mind when you said in the last preceding answer "such manufacture had been carried on continuously by the Niagara Manufacturing Company from the time it was organized until its dissolution?

502 A. I did not. All the hydrants made after the dissolution of the Niagara Manufacturing Company were made like "Exhibit Race & Mathews Hydrant," having the upper end of the frost casing passing outside of the body of the hydrant.

67 Q. To what extent did you manufacture such hydrants in Lockport from the summer of 1869, after Helen M. Lloyd gave it up?

A. I gave what attention I could to the sale of hydrants, and made arrangements with Alexander Pound, of Lockport, to manufacture them for me from my patterns, and in this way I took a limited number of orders during the summer and fall of the year 1869.

68 Q. Did Thomas R. Bailey (then Thomas R. Bailey, Jr.) ever, during all the time of your being connected with the business of the Niagara Manufacturing Company and of Helen M. Lloyd, and the time of your carrying on business yourself in Lockport, N. Y., ever to your knowledge or information, deny that Washburn Race and yourself were the original and first inventors of a hydrant with a detached and surrounding casing having end play, and capable of being heaved by the frost without derangement or disturbance of the hydrant proper?

(Objected to as immaterial, leading, and incompetent.)

A. No, sir; never to my knowledge; I never heard that he did.

(Same objection.)

69 Q. Did the said Thomas R. Bailey, Jr., during all the time mentioned in the last preceding interrogatory, ever, to your knowledge, assert or suggest that he was an original inventor or the
503 first and original inventor of a hydrant with a detached and surrounding casing having end play, and capable of being heaved by the frost without derangement or disturbance of the hydrant proper?

(Objected to as leading, incompetent, immaterial, and entirely improper; and I give counsel for defendants notice that I will take the earliest opportunity to have the same stricken from the deposition.)

A. He never did to me personally, and I never heard of his making such claim to any one during the time or period mentioned.

70 Q. The said Thomas R. Bailey has testified that on the occasion of your requesting him to make a disclaimer to the feature alleged to have been in his Patent-Office model upon which the application of Mr. Race and yourself for patent No. 96959 was rejected he, the said Bailey, denied that the loose case which you claimed was yours. Did he make any such denial?

(Same objection; same notice.)

A. No, sir.

71 Q. Up to the time of your having the lithographic stone changed so as to produce the lithographs like "Exhibit Niagara Manufacturing Co. Lithograph," what other lithographs, if any, besides those like "Exhibit Race, Mathews & Co. Lithograph," did your firm or corporation have?

A. We had no other. That was our first, and was in use up to that time. I refer to the time of the alteration.

72 Q. When do you remember to have last seen a copy of the lithograph like "Exhibit Race, Mathews & Co. Lithograph," before seeing it produced by Marmaduke Clark at Utica a few weeks since?

504 A. Certainly not since 1870, when I left Lockport, and possibly for some time previous to that, for I have no recollection of seeing any after the time of the alteration. My impres-

sion is that the edition must have been about used up at that time. Possibly I may have seen them around for two or three years afterwards. I can't say definitely.

73 Q. Did you, or did the firm of R. D. Wood & Co., to your knowledge, up to the date of the reissue No. 6990, March 14, 1876, ever receive notice from T. R. Bailey, Jr., the patentee, or from any one in his behalf, that the hydrants of your manufacture embraced any invention described and patented, or intended to be described and patented, in and by his original patent, No. 75344, of March 10, 1868?

A. No, sir.

(Question and answer objected to as leading and immaterial.)

74 Q. When, if at all, did you or the firm of R. D. Wood & Co. ever receive any threat of suit under the reissue, No. 6990, of March 14, 1876, by reason of your manufacture of hydrants such as are complained of in this case? I do not here refer to any circular setting forth alleged claims based upon such patent, but an actual threat of litigation.

(Same objection.)

A. Neither myself nor R. D. Wood & Co., to my knowledge, have ever been threatened with suit by any parties for the manufacture of any hydrants as mentioned up to the time of this suit.

75 Q. What had been the extent of the manufacture of such hydrants as are complained of as infringements in this suit up to March 14, 1876, the date of the reissue, No. 6990, sued upon, and
505 what the extent of [the] manufacture by yourself and R. D. Wood & Co. from that date down to the beginning of the present suit?

A. I think up to the date of the reissue about eight or nine thousand. This does not include the manufacture of parties with whom I was not connected in business. From the date of the reissue to the beginning of this suit about twelve or fourteen thousand, as near as I can remember. I should say that there were probably as many as thirty thousand such hydrants in use in the United States, including the manufacture of other parties.

76 Q. When you say "including the manufacture of other parties" do you mean to include any manfactured by the complainants in this case?

A. I do not.

77 Q. Where have these twenty to twenty-three thousand hydrants like "Exhibit Race & Mathews Hydrant," manufactured by yourself and those with whom you have been connected in business up to the date of the commencement of this suit, together with the seven to ten thousand similar hydrants manufactured by other parties, been put into use?

A. In the principal cities of the United States and Canada. But very few have gone to Canada.

78 Q. Mr. James Flower and Mr. George Flower, each of them, referred to an interview had between you and them some time in

March, 1877. Do you remember any such interview at that time in the city of Detroit?

A. I do. I have no definite recollection as to the time, but presume it was at the time testified to by Mr. Flower. It was at his office, in the city of Detroit.

79 Q. Do you remember the conversation, or the substance of the conversation, which took place at that time? If so, please state it.

506 A. I cannot give the conversation, but I do remember the the substance of it. I remember stating to Mr. Flower the condition in which our suit against the Boston Machine Company stood; that the case had been argued, and that we were expecting a decision, and I requested him or urged him to discontiue the manufacture of the hydrants with the frost-cases until that suit was decided. I do not remember that he gave me any definite reply. I think I also stated to him the circumstances under which Bailey got up his hydrant, and told him I had no doubt but that Bailey had deceived him in the matter, and that I presumed he had obtained the patent for little or nothing. The whole interview was friendly, and no hard words or manifestations of feeling were displayed on either side.

80 Q. Did Mr. James Flower or Mr. George Flower at that interview state to you that they were preparing to begin suit against you and R. D. Wood & Co. or your vendees upon the Bailey reissue No. 6990, or did you in any way request them to refrain from bringing such suit or to wait before bringing it until the issue in your suit against the Boston Machine Company could be determined, or anything to that effect?

A. No, sir; there was no reference either by James Flower or his brother to any proposed suit against R. D. Wood & Co. or myself, or any other parties. I never considered the patent of T. R. Bailey, Jr., of sufficient importance to deem it possible that any party would ever think of bring suit upon such grounds. Mr. Flower probably misunderstood me when I requested him to discontinue the manufacture, as stated before, for I certainly never had any idea that he contemplated suit on the Bailey patent.

507 81 Q. Do you remember stating to Messrs. Flower, or either of them, at that interview that you thought you and they should arbitrate your differences without going into court or anything to that effect?

A. I think I stated that after this case was decided and we knew what our rights were that I thought we could, as business men, settle matters in relation to such things without expensive litigation. Mr. Flower's statement is substantially correct as to that, I think.

82 Q. What matters did you then have reference to as those which you thought could be settled without litigation?

A. I referred to the matters at issue between ourselves and the Boston Machine Co., and I thought that if the case was decided in our favor that Mr. Flower would undoubtedly concede to us our rights. I did not at that time attach to Bailey's patent any particular importance; I never have, and still do not, and I presumed that it would be easy to convince Mr. Flower that Bailey's claims were entirely

unfounded, as expressed in his reissued patent. The long continuance of our case in the courts had led most of our competitors in business to believe that we were not pressing it, and that we were not anxious to bring it to a conclusion. Acting on this supposition, several of them commenced making hydrants with frost-cases having end play similar to those shown in "Exhibit Race & Mathews Hydrant." I naturally supposed that Mr. Flower was influenced more by the same considerations than from any value he attached to the Bailey patent.

508 83 Q. Have you caused to be prepared illustrative sectional full-sized models of "Exhibit Race & Mathews Hydrant" and of "Exhibit Bailey Hydrant," at the request of your counsel, for his convenience in presenting this case to the court; if so, will you produce them and state in general terms what features they represent?

A. I have had such models prepared, and for the purpose designated, and produce the same.

(Counsel for defendants puts in evidence the first model referred to, and it is marked "Exhibit Board Model, Race & Mathews New Style Hydrant;" and also puts in evidence the second model referred to, which is marked "Exhibit Board Model, Bailey Hydrant."

These models are made full size from working drawings, and are shown partly in sections painted on the board and partly by full-sized portions in half, so as to convey a clear idea of the actual construction of the hydrants in relation of the several parts, to assist and for convenience in illustrating the hydrants by counsel before the court. In these models I have only shown portions of the casing at top and bottom; the intermediate pieces connecting these parts are simply mechanical expedients for holding them in place. The same is true of all the board models used in this case, and I have every reason to believe that these models are exact representations of the hydrants intended to be illustrated, as I ordered the drawings to be made strictly to scale, and they were constructed from these drawings by the pattern-makers. I notice a trifling discrepancy in the shape of the bead at the top of the casing of "Exhibit Board Model, Race & Mathews New Style Hydrant," which is, however, entirely immaterial and has nothing whatever to do with the functions of the case.

509 84 Q. What has been the construction of all the hydrants furnished by you and R. D. Wood & Co. to the city of Detroit, both before and after March 14, 1876, the date of the reissue in suit? How early did you begin to furnish such hydrants to that city?

A. All the hydrants now in use in the city of Detroit of the Race & Mathews patent are of the new style, like "Exhibit Race & Mathews Hydrant." We did furnish the city of Detroit, some time previous to the date mentioned, a few—five or six, I think—of the old-style hydrants, which were afterwards replaced by the new style, since the year 1872 or 1873, I am not sure which. I refer to the time when R. D. Wood & Co. began to supply the hydrants to the city of Detroit. They have all been uniform in style and similar to

the "Exhibit Race & Mathews Hydrant." I do not think that the city of Detroit has any other construction of our hydrant in use.

85 Q. Who were the witnesses, in the former case of Samuel R. C. Mathews *et al. vs.* The Boston Machine Co. *et al.*, who testified as to the construction and use of the New York hydrant, illustrated by "Exhibit Board Model, New York Hydrant," with wooden cases like "Exhibit New York Hydrant Box?"

(Objected to as immaterial and incompetent.)

A. Albert Chesebro and James D. Keegan, the same persons of these names who have testified in this case.

86 Q. What has been the construction of all the hydrants manufactured by you and the concerns with which you have been connected in business from 1858 to the present time in respect to the mode of operating the main valve rod, the means for preventing the water from escaping at the top of the hydrant above the hose-nozzle, and the means for controlling the waste orifice?

510 A. All the hydrants manufactured by us during the time specified have been operated by a revolving or sleeve nut, with an internal thread working upon a thread cut on the valve-rod. They have all been provided with what are termed packing or stuffing boxes to prevent the passage of the water into the upper portion of the hydrant, and they have all been provided with waste-valves, which closed when the main valve was opened, and opened or uncovered the waste orifice when the main valve was closed.

Cross-examined:

87 C. Q. When did you first become acquainted with Washburn Race, where did he then reside, and what was his occupation? Where did you then reside, and what was your occupation?

A. I first met Mr. Race in the summer of 1855, at Seneca Falls, N. Y.; I was then residing there; went there in the spring of 1855; was engaged in mercantile business at that time; Mr. Race had resided there for several years; he was not in business at this time; he had been a partner in the firm of Silsby, Race & Holly, but had sold out his interest, mainly on account of ill health.

88 C. Q. Where did you reside before going to Seneca Falls?

A. At Penn Yan, N. Y., about four or five months; previous to that in Illinois. I was engaged in railroad surveying from some time in 1852 until the time that I went to Penn Yan. I was on the first survey of the Chicago & Milwaukee railroad, or rather a line which was proposed to be built between those points. The lines were differently located before the construction, and I do not know the title of the first company which built the first road be-

511 tween the points mentioned. Afterwards I was on the survey of the Chicago, St. Charles & Mississippi Air Line. Previous to my railroad experience in the West I had been engaged in the enlargement of the Erie canal, in New York State.

89 C. Q. Where did you reside before going to Illinois?

(Objected to as immaterial.)

A. It was divided up mainly between Schenectady, N. Y., and New York city. I cannot give the times definitely.

90 C. Q. Where were you born?

(Same objection.)

A. On Long Island, N. Y.

91 C. Q. I think you stated that you were a civil engineer. Please state where and how long you pursued your studies, if any, to that end.

A. I simply took the scientific course in college. I made up the rest from field practice, with its accompanying office work. I have never advertised myself as a civil engineer, professionally, nor as a mechanical engineer. I simply say that I was engaged as an engineer at the times and places aforementioned. I am not a graduate from any college or technical institute of civil engineering. I simply state the occupation or profession I was engaged in.

92 C. Q. What college do you refer to?

A. Union College, Schenectady, N. Y.

93. C. Q. What years were you there?

A. I entered the junior year, without conditions, and left in the senior year.

94 C. Q. When was this?

A. About 1848 or 1849.

512 95 C. Q. On January 26, 1858, there was issued to you and Washburn Race letters patent No. 19206. Do you remember the model deposited in the Patent Office by you and Mr. Race on the application for such letters patent? If you please, examine the drawing connected with said letters patent and state how the same compares in construction with such model.

(Objected to as inadmissible, the model being the best evidence, and the plaintiffs having already taken the testimony of the Patent Office officials in respect thereto, and in its presence.)

A. I know there was a model sent to the Patent Office at that time, but I have no definite recollection in regard to it.

96 C. Q. On August 16, 1869, when you notified Mr. James Fleming and Mayor Brown that the Bailey hydrant "is an infringement on the patent granted to "us on January 28, 1858," you referred to this patent of January 26, 1858, did you not?

A. I did.

97 C. Q. What feature of the Bailey hydrant did you have reference to in giving those notices?

A. The detached case of the hydrant. We considered that he infringed the second claim of our patent of 1858, No. 19206, January 26.

98 C. Q. Then, in the notice to Mr. Fleming, you state further: "We intend to prosecute all such infringement to the fullest extent of the law, and will commence proceedings at once against any party or parties making or using a hydrant with a detached case." You then claimed, did you not, that your patent of January 26, 1858, embraced any hydrant with a detached case?

A. We did, when constructed and arranged as described in that patent.

513 99 C. Q. You state further in this letter that "we wish to notify you that the hydrant proposed to be manufactured by them (meaning Bailey Bros.) is an infringement," etc. How did you know that fact?

A. Because I had seen the sketch of his hydrant.

100 C. Q. Where?

A. In the Patent Office Report; and from that and the general conversation of our workmen, who seemed better posted in his business than I was, I knew that he intended to make a hydrant with a detached case. I was not aware that he had made any up to that time.

101 C. Q. You afterwards saw those which he delivered to Mr. Fleming, did you not?

A. I saw some of them lying on the ground, I should think, for a couple of years afterwards. They had been made and delivered to Mr. Fleming before I saw them at all.

102 C. Q. At this time you had been fully informed of the text of the letter of Elisha Foote, commissioner, marked "Complainants' Exhibit Commissioner's Letter of December 17, 1868," had you not?

A. I had, through our patent attorneys in their notice to me of the rejection of our claims. I do not remember seeing the letter itself.

103 C. Q. How long before you wrote this letter to James Fleming, dated August 16, 1869, did you learn that he had ordered any hydrants of Messrs. Bailey Brothers?

A. I do not remember.

104 C. Q. You knew of his having entered into a contract with the city of Lockport about that time, did you not?

A. I knew that such a contract had been made. It was a small matter, and I did not give it much attention; I expected as a

514 matter of course they would continue to use my hydrants as they required them. I don't think I paid any attention to it until I heard that Bailey had contracted with him for the hydrants. I think that at the time I wrote the letter to Fleming the hydrants had been delivered, but I am not positive as to that.

105 C. Q. This letter of rejection is dated December 17, 1868. Afterwards we find the six letters marked "Complainants' Exhibit Mathews-Osgood Letter," respectively, No. 1, No. 2, No. 3, No. 4, No. 5, No. 6. Is it not a fact that the hydrants manufactured by Bailey Brothers for Mr. Fleming, or your information in regard thereto, was the immediate cause of the institution of this correspondence between you and Messrs. Burke, Fraser, and Osgood?

A. No, sir; it was not. This correspondence was occasioned by the fact of the rejection of our claims with reference to the Bailey model. It had nothing to do with the Fleming contract in any way, shape, or manner.

106 C. Q. The testimony in this case at Lockport shows that the Fleming contract was made July 6, 1869. This correspondence begins July 23, 1869. Your second letter referred to, said "Exhibit No. 2," directs your attorney in language as follows: "You will

please proceed at once with our interference case. T. R. Bailey's Sons do not seem inclined to make any concession in the matter, and we wish the matter brought to a conclusion now speedily as possible after the long delay there has been." Is it not a fact that when you wrote this letter and gave these instructions to your attorneys you knew that James Fleming had ordered some five hydrants of Messrs. Bailey Brothers for use in the city of Lockport?

515 A. I may possibly have known that Fleming had made a contract with the City of Lockport for making this extension, as I would naturally learn of such things through the papers. I am positive that I knew nothing of the contract of Fleming with Bailey at the time I wrote the said letter, dated August 14, 1869. My recollection is that I wrote to Fleming and to the mayor of the city very soon after—probably within a few days. I cannot fix the time more definitely—of the time which I learned that Fleming had made such a contract for hydrants. I say again that the Fleming contract had nothing to do with the starting or continuance of this correspondence.

107 C. Q. When was this letter, "Complainants' Exhibit Mathews-Osgood Letter No. 2," written?

A. August 14, 1869, the day of its date.

107½ C. Q. When was the Race & Mathews-Fleming letter written?

A. It seems from this copy to have been written August 16, 1869. I have not seen the original letter.

108 C. Q. Then if you knew of the order of Mr. Fleming to Bailey Bros. for hydrants—referred to in the Race & Mathews-Fleming letter—a few days before that letter was written, you certainly must have known that fact two days before you wrote the letter?

A. I might have known it two days or I might have known it two weeks. In neither case it had nothing to do with my correspondence with Burke, Fraser & Osgood?

109 C. Q. But it is probable, is it not, that when you wrote this letter, "Complainants' Exhibit Mathews-Osgood Letter No. 2," you were fully informed of the order of James Fleming for fire-hydrants, referred to in the Race & Mathews-Fleming letter?

516 A. I might have been so informed or I might not. I have no definite recollection whatever as to the day I learned the fact. This letter to Fleming might have been written to him on the day I got the information, or the day after, or ten days after. I again repeat that it had nothing whatever to do with my correspondence with Burke, Fraser & Osgood.

110 C. Q. What makes you so positive in this matter?

A. Because it did not necessarily have anything to do with the case in hand. The manufacture of hydrants by Bailey I considered a separate affair at that time, and one that I could attend to myself without their assistance. They were simply employed to get my patent through.

Adjourned to June 11, at 10 a. m.

NEW YORK, *June* 11, 1884.

Present: Edward J. Hill, for complainants; George L. Roberts, for defendants.

Continuation of the cross-examination of the witness MATHEWS:

112 C. Q. You have stated generally as to the numbers of hydrants manufactured like the "Exhibit Race & Mathews Hydrant." Please examine "Exhibit Flower Model," and state whether you have ever seen any hydrants made with a loose or detached case like the one upon this model.

A. I have seen hydrants made by the Boston Machine Company which had similar construction of case. I do not remember
517 seeing any of Mr. Flower's manufacture out of the ground, so I could not speak as to the construction of the bottom.

113 C. Q. Now, when you called to see Mr. Flower and his brother in Detroit, in 1877, you were then claiming that they were infringing your patents in the manufacture of hydrants, were you not?

A. I was.

114 C. Q. And it was this detached case that was the feature of the invention which you then claimed that they infringed, was it not?

A. It was.

115 C. Q. You had, for a good many years prior thereto, seen hydrants of their manufacture set in the ground, had you not?

A. I had.

116 C. Q. Where?

A. At Niles, Mich., and at some few other places in Michigan. I do not remember any place in particular, except that I saw them in several places.

117 C. Q. How did you know that they were of the Flower Brothers manufacture?

A. I saw the name of Flower & Brothers upon the hydrants.

118 C. Q. You examined the marks upon the hydrants to see whose manufacture they were, did you?

A. I did; I naturally noticed such things.

119 C. Q. You had also observed those on hydrants from time to time as you looked at them—the words "T. R. Bailey, patented March 10, 1868; reissued March 14, 1876," had you not?

A. I don't remember that I had. I gave very little attention to them, except to observe that they were manufactured by Flower & Brothers. I never saw them but a few times in a few places.
518 I supposed that Mr. Flower was making a hydrant with such a casing from the fact that I saw his circulars frequently around the country. I had no reason to doubt that he did make them so.

120 C. Q. But you were positive, were you not, that he did make them so?

A. I can only state from my own knowledge of the portion of the hydrant above the ground; the rest I inferred from the cuts on his circulars. When I visited Mr. Flower, in Detroit, he did not invite

me into his machine-shop to look into his hydrants. I am willing to admit that, as far as I know, they were of this construction.

121 C. Q. You speak of circulars; you remember seeing one issued by James Flower & Brothers, dated March 31, 1876, which was introduced in evidence in your presence as part of the testimony of Mr. James Flower, at Detroit, early in March last, and of the circular of R. D. Wood & Co., in reply thereto, do you not?

A. I do.

122 C. Q. At that time you were with R. D. Wood & Co., were you not?

A. I was.

123 C. Q. The agreement between you and R. D. Wood & Co. is in writing, is it not?

A. Yes, sir.

124 C. Q. Have you the original with you?

A. No, sir.

125 C. Q. The copy, however, that it is set forth in the record in the case between yourself and others and the Boston Machine Company, to which you have referred, is correct, is it not?

A. I presume it is. I have never compared them.

519 126 C. Q. That agreement has constituted the basis of your connection with R. D. Wood & Co. in the manufacture of hydrants from its date down to the present time, has it not?

A. Yes, sir.

127 C. Q. When did you first see the circular of Flower Brothers, dated March 31, 1876, as near as you can remember?

A. It was a very short time before the date of my answering circular, as I lost no time in replying to it. I will say here that the circular which I saw was one sent to us from Cleveland, Ohio, from the superintendent of the water-works asking what it meant. Mr. Flower has stated that he sent the first circular to R. D. Wood & Co. If he did so, I have never seen it.

128 C. Q. What do you mean by your answering circular?

A. I mean the circular which you have referred to in your preceding interrogatory—a circular issued by R. D. Wood & Co.

129 C. Q. Then you yourself drafted the original of the copy for that answering circular, did you not?

A. I did.

130 C. Q. And the facts set forth in that circular were true at that time of your own knowledge and belief?

A. They were, and are still, to the best of my knowledge and belief.

131 C. Q. When you received this circular of Messrs. Flower Brothers, you didn't consider that as a notice of their claims to and under the Bailey patent, did you?

A. I took it for just what it said. I presume it was intended for such a notice. I knew the fact before that the Bailey patent

520 had been assigned to Mr. Flower and reissued. I did not consider there was anything more in the circular than what I had known previously in regard to it. I considered it simply intended to frighten my customers, and consequently thought it nec-

essary to reply promptly, as I did in the answering circular of R. D. Wood & Co., copies of which were sent to all our customers, one to James Flower & Brothers and, I think, one to Thomas R. Bailey, Jr. I considered it a perfect outrage, knowing the facts of the case as well as I did, and one requiring that we should lose no time in putting ourselves in proper position before our customers. We knew that we were the inventors of the frost-case; that Bailey had no valid claim to the same, and we intended to assert our rights fully.

132 C. Q. Then your circular was, according to your knowledge and belief, a plain statement of the facts in the matter, as you understood them, made in assertion of your rights under your then existing patents to ward off the claims of James Flower & Brothers made in their circular?

A. We meant just what we said in our circular, nothing more or less, and which covered what we believed to be the true state of the case.

133 C. Q. So you attached no degree of importance whatever, then, to the patents mentioned in tho Flower Brothers' circular, did you?

A. Only so far as his circulars might influence parties buying hydrants, particularly our own customers, to whom this circular seemed to have been particularly directed.

134 C. Q. Had you any reason to doubt the sincerity of the Flower Brothers, or to question their good faith in the assertions of their claims, as set forth in their circular.

521 A. I had not; never did. As I stated yesterday, that in my conversation with Mr. Flower, at Detroit, my recollection is that I told him that I thought Bailey had deceived him in the matter.

135 C. Q. Now, if Bailey's patent were to your mind of such insignificance, why did you take so much pains to get a patent for the self-same thing as was represented by his model on file in the Patent Office?

A. While I considered the features of the frost-case important, I did not attach any importance to the claims of Bailey as the inventor of it, because I knew he did not invent it, and I have no reason to suppose that at the time he applied for his first patent he had any idea of making a claim for such a structure.

136 C. Q. But you asked him to disclaim it, did you not, and he refused to do so, did he not?

A. I asked him to disclaim it for the very reason that I knew, and believed him to know, that he had no invention in it, and because the reference to his model in the rejection of my patent required, as I supposed, either such a disclaimer or else that we should go into interference. I thought that in his refusal to do anything in the matter he was acting like a dog in the manger—could not claim the feature himself and would prevent me from getting it if he could.

137 C. Q. You counseled with Mr. R. F. Osgood, of Rochester, in regard to this matter, did you not, at that time?

A. We were in correspondence throughout the time of the appli-

cation until the time when the patent was issued, and I presume I acted on their suggestions generally.

138 C. Q. In the letter marked "Defendants' Exhibit Os-
522 good-Wiedersheim Letter," dated October 5, 1869, occurs the the following, that is to say: "Bailey lives in the same town took his pattern from R. & M. manufactured article." From whom did Mr. Osgood obtain this information?

A. Well, he may have obtained it from me. I have no recollection of any letter. If you will produce such a letter to Osgood I will identify it. The facts of the case I believe to be as stated.

139 C. Q. Your evidence of that fact was conclusive, was it not, that Bailey lived in the same town with you?

A. Yes, sir.

140 C. Q. You knew him from the time you first went to Lockport until you left there, in 1870, did you not?

A. I don't remember when I first met Mr. Bailey; it might have been several years after I went there, and I had very little personal acquaintance with him. I had a little work done at his shop; I think a few tools made. He got some castings from us. Outside of these matters I do not remember that we ever had any personal intercourse.

141 C. Q. His shop was alongside of yours, was it not, for a number of years?

A. Two or three hundred feet away.

142 C. Q. Comparatively a small establishment, was it not?

A. I do not know of my own knowledge how many men they employed—in fact, know but very little about their business. My own time was fully occupied with our own affairs, and I gave very little attention to that of other parties.

143 C. Q. You will not swear positively, will you, that
523 Bailey took his pattern from Race & Mathews' manufactured article—I mean the pattern referred to by Mr. Osgood in his letter of October 5, 1869?

A. I cannot swear that he did, because I did not see him do it, but I believed then and believe now that he copied from our patterns.

144 C. Q. What made you then believe so, and what makes you now believe so? State the grounds of your belief.

A. Simply the construction of certain parts of his hydrant.

145 C. Q. What parts?

A. The general construction of the outside casing, the cylindrical part of the body of the hydrant on which the case slides, and the bead for limiting the motion of the case; also the method of operating the valve-rod, which, though not patented by us, had never been previously to our use used in the United States or elsewhere, as connected with a hydrant, to my knowledge.

146 C. Q. From what had you learned, in August, 1869, of these peculiar features of Bailey's hydrant?

A. From the Patent Office Report and accompanying drawing, I presume. At this late time I do not know whether I had any other means of knowing or not. I do know that the workmen at our

manufactory discussed the matter considerably, and frequently told me that Bailey was getting up a hydrant copied from ours. I paid but little attention to these reports, and thought but little about the matter anyway, excepting so far as the Bailey patent stood in the way of the allowance of our claims, until the time when I learned that he had actually contracted for the manufacture of such hydrants, and then I considered it was time to take some action in the matter.

524 147 C. Q. You were fully informed at that time, were you not, that Bailey had on file or deposited in the Patent Office a model, to which you were referred by the Commissioner of Patents, showing the whole invention which you had claimed in your application of October 29, 1868?

A. I knew from the letter of rejection, of course, that Bailey had a model in the Patent Office; farther than that, I left the matter entirely with my patent solicitors. That communication referred to a model having a detached casing, I believe.

148 C. Q. In answer to cross-interrogatory 144 you conclude: "And then I considered it was time to take some action in the matter." What action did you then take, if any?

A. That of notifying the parties who contemplated using the hydrants, as shown in my letter to James Fleming, which was all the action I deemed necessary at that time, and the result proved that I was correct, for Bailey did not there make any further attempt to sell his hydrants, to my knowledge. I considered that if he deemed his patent was tenable and really had any relation to a detached case that he had it in his power to assert his rights and substantiate such claims. He took no action of the kind, and I have no reason to suppose that he thought he had any rights which the courts would uphold, and therefore made no protest and no remonstrance in answer to my Fleming letter.

149 C. Q. What other or further action did you take having reference to Mr. Bailey's patent at this time?

A. I had nothing whatever to do with Mr. Bailey's patent.

150 C. Q. Question repeated.

525 A. Same answer. If the counsel will inform me whether or not he means, in regard to the prosecution of my own claim, so far as affected by the Bailey hydrant, perhaps I can give him an intelligible answer.

151 C. Q. In answer to the interrogatory of the witness, complainants' counsel says, I do; and in that view repeats the former question.

A. In answer to this question I will be obliged to refer the counsel to my letters written to Burke, Fraser, and Osgood, which I believe he has in his possession, as they will give the history of the case more clearly than I can pretend to do from recollection after so long a time.

152 C. Q. Then you consider that correspondence and the facts stated in your letters at that time much more reliable than your remembrance of the same as it now is, after the lapse of so long a time?

A. Most certainly, so far as to the matters contained in those letters.

153 C. Q. You understood at that time, as you stated, that in order to obtain a patent for an outside sliding case upon a hydrant, as shown by your drawings and model filed and deposited in the Patent Office with your application of October 29, 1868, it would be necessary for you to show that you and Mr. Race invented the same before Bailey did, did you not?

A. I did—unless Bailey would disclaim the features referred to.

154 C. Q. In your letter of August 27, 1869, marked "Complainants' Exhibit Mathews-Osgood Letter No. 4," is the following statement: "Upon reference to my papers I find that my first sketch of the outside detached case was made in office of Sage, Sons &
526 Co., Buffalo, at the time of ordering change in lithograph, April, 1866. Our change of pattern was made soon after, as we can prove by the pattern-maker, but we did not manufacture the new style until spring of 1867, wishing to use up all the old stock on hand first." Since this letter was written you have testified concerning these facts, as shown in your former deposition, given in 1876, and have had occasion to investigate more thoroughly concerning these facts. In view of all this, do you desire to change or modify this statement in this letter in any way?

A. I could not see what facilities I could have had at the time this letter was written more than I had at the time the testimony referred to was given, as to whether the change in the lithograph at the office of Sage, Sons & Co., of Buffalo, was made in March or April, 1866. I made two visits to Sage, Sons & Co.'s office, and have no definite means of knowing at which one of them the change was made. At the time this letter was written I may have merely noticed the account of but one visit to Buffalo, and hence fixed the time at that date. As in my former testimony, I say I cannot tell at which of the times referred to it was done. This letter is evidently written in general terms, as there was nothing in this that would have any effect upon our case at Washington, and was for the general information of our patent attorneys.

155 C. Q. You have testified that while manufacturing hydrants at Seneca Falls the outside case was not made loose, have you not?

A. No, sir; I have not testified anything of the kind.

156 C. Q. It had no end play, had it?

A. It had.

527 157 C. Q. I understood you to say in your direct examination that you manufactured your hydrants at Seneca Falls, under the patent of 1858, strictly according to that patent, with certain exceptions which you carefully detailed and specified. I did not understand you to say that there was any difference between the outside jacket in the articles which you then manufactured and that represented in the drawing attached to your patent of January 26, 1858. Am I correct?

A. We did make them strictly in accordance with the patent of 1858, with the exceptions which you have referred to; but it was a mechanical necessity in the construction that the case or jacket

should be so made as to be certain it would not obstruct or hinder the hydrant stock or body from being screwed home onto its packing in the base, so as to form a tight joint. Taking into consideration the variation in the length of the stocks caused in the finishing and the different depths of seat as turned in the elbow, we never considered it safe to make this allowance less than one inch, and so constructed all the hydrants we made at Seneca Falls.

158 C. Q. Looking at the "Exhibit Race, Mathews & Co. Lithograph," the third section of the letter-press, it seems that after leaving Sececa Falls, and about the time you commenced business at Lockport, you increased this variation to two inches, or so described your manufacture in the said lithograph; am I correct?

A. Yes.

159 C. Q. Now Mr. Gleason testifies that in the manufacture at Lockport no material change was made in the construction
528 of the hydrants in this respect until he altered the patterns in May and June, 1866. What is your recollection in regard to this fact?

(Objected to as inadmissible, so far as it assumes to state what has been testified by another witness.)

160 C. Q. Question withdrawn, and the following question put in its stead: What change, if any, was made by Race, Mathews & Co. other than the extra allowance of an inch before referred to at Lockport, N. Y., in the manufacture of hydrants up to the organization of the Niagara Manufacturing Company?

A. Some time between the years 1858 and 1863, which, I believe, was the time when the Lockport water-works were constructed, we increased the depth of the base flange, as we termed it, but whether done by Race & Mathews, at Seneca Falls, or Race, Mathews & Co., at Lockport, or by what pattern-maker, I am unable to state, only that it was done between those periods. I refer to the earlier date above given because we made at Seneca Falls a lot of seventy-five or eighty hydrants which, to the best of my recollection, did not have more than one inch play of casing. It was between that time and the furnishing of the hydrants for Lockport that the change was made. These hydrants were sent to Buffalo in the fall of 1858 or 1859, I am not certain which.

161 C. Q. The hydrants manufactured then by you, even under your letters patent of January 26, 1858, all had a loose jacket situated outside the hydrant, did they not?

A. They all had loose jackets, and the main portions of the casings surrounded the body of the hydrant. The extreme top and bottom portions, however, both passed inside the flanges.

162 C. Q. But no part of them was inside of the hydrant, was it?

529 A. No.

163 C. Q. All such hydrants had loose jackets, and each of those jackets had a vertical play to compensate for the action of the frost, did it not?

A. All the hydrants referred to had such loose casings made as I

have stated before, with a certain amount of end play, and from that we derived the incidental advantage of preventing the frost injuring the body of the hydrant to a certain extent.

164 C. Q. Please examine and read carefully the affidavit known as "Defendants' Exhibit Goss Affidavit," and state whether the description of the hydrant therein might not apply with equal propriety to either style of hydrant which you say you manufactured at Lockport, N. Y.; and, if not, why not?

A. It would not, because he refers specifically to hydrants sent of the improved form. Previous to that he had had but one kind, which was the old style of hydrant.

165 C. Q. But you were from time to time improving the old styles, always claiming improved patterns in hydrants, were you not?

A. There were no improvements which I remember other than those which have been already referred to, particularly so far as the main stock and case were concerned. As the Auburn water-works were not constructed until after the Lockport works, and as this change in the base flange was made before the Lockport works were built, there had been no occasion to make any change in the hydrants sent to Auburn, and there were no changes made till we sent them this new style of hydrant which Mr. Goss refers to in his affidavit.

166 C. Q. Does this "Exhibit Race, Mathews & Co. Lithograph" show this change to which you have last referred?

530 A. It does. I refer to the change in the base flange; it was not made strictly to scale, probably, and the base flange was altered in a subsequent lithograph to show the base in connection with its position on the ground more accurately.

167 C. Q. Supposing that we had before us a hydrant like the one represented in "Exhibit Board Model, Race & Matthews Old-Style Hydrant," and I were to describe it as having a loose jacket situated outside the hydrant, which loose jacket has a verticle play to compensate for the action of the frost, would not that be a correct description of the frost-jacket on such hydrant?

A. It would, with the limitations that I referred to before as regards the ends of the case; it certainly has the feature of compensation for the heaving of the frost, as any detached or loose casing having end play must necessarily have; as to that, there can be no question.

168 C. Q. Then when Mr. Goss made his affidavit, if, as a matter of fact, he had received the old-style hydrant instead of the new, he might have described the loose case in the same language that he has in this affidavit without being in error, might he not?

A. He might have done so; but as he coupled his description with reference to the new style, it is clearly evident that he referred to that and nothing else; and I here say that I consider his affidavit as the best testimony to show what he did mean.

169 C. Q. But if it should be shown to your satisfaction, as a matter of fact, that Mr. Goss had never seen, when he made this affidavit, any other hydrant of your manufacture than that of the

old-style, then you would not consider that, in making the affidavit referred to, Mr. Goss was in error, would you?

531 A. I am satisfied that when Mr. Goss uses the words "having a loose jacket situated outside the hydrant," he refers specifically to the new construction, as distinguished from those which he had used previously.

(Answer objected to as irresponsive.)

170 C. Q. Question repeated.

(Question objected to as hypothetical and argumentative, and as inadmissible.)

A. Taking the description by itself, and separated from the other matter of this letter and his reference to the new pattern of hydrant, I should say that it described the case referred to very fairly.

171 C. Q. Which case, the one on the new-pattern hydrant, or the one on the old-style hydrant?

A. Either one, or both, so far as the description goes.

172 C. Q. The same is true as to the Ward affidavit, is it not?

A. It would did he not specifically refer to certain hydrants which were of the new pattern.

173 C. Q. These "Exhibits Mathews-Osgood Letters Nos. 1, 2, 3, 4, 5, 6" are not all the letters which you wrote to Mr Osgood, or Burke, Fraser & Osgood, between July 23, 1869, and Oct. 1, 1869, are they?

A. I could not say. I have no copies of the letters written to them.

174 C. Q. You were present in Rochester, were you not, when Mr. Osgood produced the letters at my request? Did you not have another letter in your possession at that time, which Mr. Osgood did not produce?

532 A. I was present. My impression was that Mr. Osgood put in all the letters that were there. I did not notice them particularly. I presumed you called for all that he had.

175 C. Q. Did you not make an affidavit about the time of the making of the Goss and Ward affidavits and send the same to Mr. Fraser with them or one of them, to be sent to Washington?

A. I believe I did.

176 C. Q. What has become of that?

A. I do not know, neither do I know whether this affidavit was any different in substance from the one sent to John F. Ward. I have no reason to believe but what they were essentially the same. I never saw either of them afterwards until this affidavit was produced here by Mr. Wiedersheim. I remember seeing a letter in Mr. Osgood's possession, in which the affidavit was referred to, but do not know what was done with it, or in whose possession it is.

177 C. Q. But the affidavit of Mr. Ward was originally drafted by you, was it not?

A. It was.

178 C. Q. Then you must have seen it before?

A. I saw it when I wrote it, of course.

179 C. Q. What were the reasons of the Niagara Manufacturing Company going out of business in 1868?

A. Lack of means to carry it on.

180 C. Q. The company failed, did it not?

A. It did.

181 C. Q. The Niagara Manufacturing Company was the manufacturer of all the hydrants of the new pattern which were made from March 10, 1868, until the time of its failure, was it not?

A. Yes, sir.

182 C. Q. Then any suit which Mr. Bailey might have brought against that company for an infringement of his patent, if he
533 could have been successful in sustaining the same against that company after August, 1868, and after its failure, would have been unavailing, would it not?

A. I presume if he had had any claims against the Niagara Manufacturing Company, and could have proven them, that his chances would have been as good as those of any other creditors, but my recollection is that during the period between the issue of Bailey's patent and the closing up of the affairs of the Niagara Manufacturing Company there was but little if anything done in this branch of business, and probably not enough to make it any object to bring such suit had there been cause.

183 C. Q. Do you remember a judgment against the Niagara Manufacturing Company having been entered in the supreme court of Niagara county in favor of Helen M. Lloyd?

A. I do.

184 C. Q. The entry of that judgment closed the business of the Niagara Manufacturing Company, did it not?

A. I presume it did; I do not remember just how soon the machinery and tools were sold under that judgment, but very nearly at the same time, I think.

185 C. Q. Mrs. Lloyd became the purchaser, did she not, and succeeded to the business of the Niagara Manufacturing Company?

A. She did.

186 C. Q. Did she manufacture any hydrants while she was engaged in the business at Lockport?

A. Yes, sir.

187 C. Q. How many?

A. I do not remember.

188 C. Q. She subsequently left Lockport with her husband and went to Toledo, did she not?

534 A. She did.

189 C. Q. About what time?

A. I am not certain; I think within two or three years after the close of the business; it was after I left there myself, to the best of my recollection.

190 C. Q. Mr. Race left Lockport about the same time you did, did he not?

A. No, sir; he remained there, I think, two or three years after I left; it might have been longer.

191 C. Q. Had he, to your knowledge, after the failure of the

Niagara Manufacturing Company, any property in Niagara county subject to execution?

A. I do not know that he had.

192 C. Q. How was it in that regard as to yourself?

A. The same as with Mr. Race.

193 C. Q. Same in regard to Mrs. Lloyd?

A. No, sir; she was perfectly responsible; had property at that time and has had ever since.

194 C. Q. In Niagara county, N. Y.?

A. I cannot state definitely as to that; I never saw the will of her father, Wm. P. Daniels. I know that she was one of his heirs. I know nothing of the property or of its location. Mr. Daniels lived in Lockport, and died there.

195 C. Q. Did you go directly from Lockport to Philadelphia?

A. Yes, sir.

196 C. Q. How long after you went to Philadelphia did you commence the manufacture of hydrants?

A. Immediately after—in the spring of 1870.

197 C. Q. In connection with R. D. Wood & Co.?

A. Yes, sir.

198 C. Q. Before you entered into the written agreement?

535 A. We had made a memorandum of agreement before we commenced the manufacture which embodied our general arrangement, and was afterwards elaborated and put up in legal shape along with an assignment of an interest in the patents held by me. The arrangement with them in relation to the manufacture has been the same from the beginning up to the present time.

199 C. Q. The number of hydrants of the new-style pattern which you put into the city of Lockport were—three sold to James Clapham, one to Wright and others, and five sold to James Fleming, making nine. Were these all the hydrants of that pattern that you sold to the city of Lockport, or to parties for use in that city?

A. That is all I have a positive recollection in regard to; but, refreshing my recollection from a memorandum I have, I find there was a hydrant other than those mentioned by you furnished March 17, 1868, and five April 14, 1868. These last five I see marked "per Holly Company." I cannot say of my own knowledge that they were set in the city of Lockport. There were six hydrants sold to James Fleming instead of five, making ten in all, in addition to those sold to the Holly Manufacturing Company.

200 C. Q. Do you remember of any being furnished by R. D. Wood & Co. for use in the city of Lockport?

A. There have been none.

201 C. Q. I notice that the cap upon the Race & Mathews hydrant, if I remember rightly, is marked "Race, Mathews & Co., Lockport, N. Y., patented January 26, 1858." This was the cap on the old-style hydrant, and after Mr. Gleason turned down the pattern it was used by the Niagara Manufacturing Company, was it

536 not? In other words, the lettering on the pattern of the cap was not altered by Mr. Gleason at that time, was it?

A. Mr. Gleason never had anything to do with the lettering of

patterns. That was always attended to by Mr. Race. My impression is that the hydrant caps were used indiscriminately for some time, as there was no change made in the construction of that portion of the hydrant until after we commenced to bolt the caps on the top of the hydrant, and even after that time I think we made them both ways. I refer to their being bolted or screwed upon the hydrant, as Mr. Race and myself did not agree fully as to which was the best method of attaching it. These caps were cast from iron patterns, which were very troublesome to fit up, and I presume we utilized them as we found it convenient, but all the caps had the lettering on relating to the date of the patent.

202 C. Q. While at Lockport, in taking testimony in this cause, it appeared that there were hydrants marked "Niagara Manufacturing Company; pat'd 1858." Would that throw any light on the subject, so as to enable you to speak definitely as to the construction of such hydrants?

A. No, sir; it would not.

203 C. Q. How have the hydrants been marked which you have manufactured in the city of Philadelphia?

A. With the name of R. D. Wood & Co., Philadelphia, and the dates of the several patents and reissues, some of them with my own name in addition; where there was room, Mathews' patent.

204 C. Q. They were all marked as patented under the date of November 16, 1869, were they not?

A. They were, unless they possibly made a few from the
537 old patterns before the change had been made in the letters; I think, however, that was on all of them, in addition to the words "patented 1858;" I do not remember any that did not have both patents specified.

205 C. Q. You remember the brass model, labeled "Defendants' Model," used during the examination of witnesses in this case recently in the city of Detroit. Does that fully and completely represent the new style Race & Mathews hydrant, concerning which you have testified, so far as the frost-case is concerned?

A. I think it does.

206 Q. Which, to your mind, is the most perfect representation, this model or the board model marked "Race & Mathews New-Style Hydrant," which you have produced here?

A. I should say the board model, as it is made full size to a scale and shows a spout attachment at the lower end of the casing, as was the case in the model sent to the Patent Office. Substantially the action of the casing is the same in both.

207 C. Q. How as to the construction of hydrants, before you went to Philadelphia, in regard to that spout arrangement; they all had it, did they not?

A. I do not remember when we discontinued the use of it.

208 C. Q. You speak of having seen the Patent Office Reports and a copy of the drawing of Bailey's patent of March 10, 1868. When did you first see this, as near as you can remember?

A. I have no way to fix the time; I simply remember the fact that I saw it.

209 C. Q. Do you remember to have seen a copy of his specifications and drawings about the time you directed Messrs. Burke, Fraser & Osgood to proceed with an interference with Bailey in 1869?

538 A. I may have done so; I have no distinct recollection in regard to it. Probably what I know in regard to the construction of the drawings or hydrant was through them, and it might have been from sketches furnished by them or from seeing the claims in the Scientific American that I got my first idea as to his patent, instead of from Patent Office Reports. I remember very little about it.

210 C. Q. You relied, then, mainly upon your said solicitors and their superior knowledge and ability as to the steps which were afterwards taken to procure your patent of November 16, 1869, did you?

A. That was the business for which I employed them. The only direction which I remember giving them was, if possible, to avoid going to the expense of an interference, as my means were very limited at that time, and I knew that would involve heavy expense; but that, could it not be done otherwise, to go ahead and have such interference declared.

211 C. Q. With Bailey living in the same town, doing business daily within two or three hundred feet of you, it would not have been a very difficult matter, would it, to have given him notice, and had the testimony taken relative to the priority of the invention between you and him?

A. It would; it would have been a very serious matter for me at that time to have been obliged to retain counsel and incur the necessary expenses, which, the counsel is aware, are usually pretty heavy in such business. It was also my impression at that time that this testimony would all have to be taken in Washington, which in itself would involve a very serious expense. I did not feel that I was in a position to incur any such responsibility, and would only do it as a last resource.

539 212 C. Q. You have described the former suit, viz., the case of "Samuel R. C. Mathews *et al. vs.* The Boston Machine Company." I produce a certified copy of the record of that suit from the clerk of the Supreme Court of the United States, and ask you if you did not refer to that suit and matters contained in that record frequently during your direct examination yesterday and the day before?

A. I have made some references to that suit, but I don't now recall to mind in what connection it was.

213 C. Q. On the part of the complainants in that suit you took an active part in that case, did you not?

A. I did.

214 C. Q. And [you] are familiar with everything contained in that record?

A. I have a general knowledge of it, but would have to refer to the records itself for most particulars.

215 C. Q. You were present in Washington, were you not, during the argument of that cause?

A. I was.

216 C. Q. Familiar with the briefs of counsel on both sides?

A. I have read them; I do not remember much about them.

217 C. Q. In answer to interrogatory 14 of your deposition in that cause, which is as follows: "You have mentioned a change in the construction of your hydrants by which the case was made to embrace the hydrant by a joint at the top instead of being embraced by a flanged wing, making the outside sliding case, so termed. Under what circumstances was this change originated, and when?" Your answer was as follows: "We found that although there was a limited motion necessary in the mechanical construction of
540 the case passing inside of the flange, yet that the frost acted upon this casing and caused it to lift upon the hydrant proper, causing it to break at or near its connection with the elbow; and this lifting of the casing, being concealed by the projecting flange on the base of the hydrant, was not noticed in practice, and could not be remedied under any circumstances without first taking up the hydrant, so as to leave the top of the casing exposed before it could be driven down, and consequently it was nearly inoperative for the purpose of any protection against the heaving action of the frost; this change was first designed by Mr. Race and myself early in the spring of 1866—I think in March, perhaps earlier." The change concerning which you then testified was that which resulted in the alteration of the patterns by Mr. Gleason and the manufacture of the new-style hydrant, was it not?

A. It was.

218 C. Q. In your letter to Messrs. Burke, Fraser, & Osgood, one of them written in 1869, you state substantially that your first sketch was made at the time of ordering the change in the lithograph. In this answer in the Boston case you state that this change "was first designed by Mr. Race and myself, early in the spring of 1866—I think in March, perhaps earlier." Is not the earlier statement, the one to Messrs. Burke, Fraser, & Osgood, the correct one?

A. I do not see any material discrepancy in the statement I made to Burke, Fraser, & Osgood in regard to the time of ordering change in the lithograph and the testimony I gave in the suit referred to against the Boston Machine Company. I speak here in the letter simply of the time of ordering the change in the lithograph. In a previous answer to a cross-interrogatory I have stated why
541 the time was not as likely to have been in March as in April, while in my testimony in the case against the Boston Machine Company I say, "this change was first designed by Mr. Race and myself early in the spring of 1866—I think in March, perhaps earlier." I did not by this mean to say that any sketch or drawing of such a change had at any time been made. My alteration of the lithograph was the first drawing, to my knowledge, which showed such construction. Mr. Race and myself had consulted together and determined to make a change from an inside to outside

casing (I speak with reference to the top of same), but we had not yet made any drawings showing such change.

219 C. Q. Then the "Exhibit Niagara Manufacturing Company Lithograph" represents substantially the first sketch which was made after the change was determined upon, does it not?

A. It does.

220 C. Q. But in making this sketch Mr. Race had no part, had he?

A. Not in regard to the alteration of the lithographic stone. I speak now in regard to the actual work which was ordered by me at that time; but he was fully in accord with me in regard to the necessity of a change in the construction of that portion of the hydrant, and we did our work together in such a way, and consulted each other always upon every detail of construction, or change in construction, so that it was impossible really to separate our individual ideas in regard to such changes.

221 C. Q. I think you stated that no hydrant was ever made of the form as indicated by "Exhibit Niagara Manufacturing Co. Lithograph," that Mr. Race disagreed with you in this matter, and that the working drawings for Mr. Gleason's use differed so as to
542 produce a hydrant of the exact form shown in "Exhibit Race & Mathews' Hydrant," as well as the board model of the same. Am I correct?

A. We made no hydrant of the precise form shown in the lithograph, but the principle of the improvement was clearly shown there. The modifications of the form which we deemed it best to adopt in the actual manufacture were made by us in consultation, and while presenting no new feature over the plan shown in the lithograph, made it, in our opinion, much better for actual practice and use. The invention, or rather the embodiment of our joint invention, is shown in this lithograph.

222 C. Q. What is that?

A. The use of an outside detached case surrounding the hydrant, having the upper end of the same around and outside of the base of the hydrant at the surface of the ground, so that any upheaval of the casing could be readily seen, and the casing driven back without disturbing or removing the hydrant.

223 C. Q. But it is a fact, is it not, that the hydrants which the Niagara Manufacturing Company made did not have cases of the form represented in this lithograph?

A. It is. They never made any of this precise shape, for the reasons which I have heretofore stated.

224 C. Q. Did you ever see a hydrant made like that?

A. Well, in some respects, yes. One of the patterns of the Boston Machine Company was so constructed as to produce almost the identical effect when the case was lifted as objected to by Mr. Race in this construction, and from my personal observation of the
543 same I think his objections were well founded.

225 C. Q. So that really, by adopting Mr. Race's objection, you improved upon the design shown in the lithograph?

A. Simply its appearance. There was no gain as to utility of the casing.

226 C. Q. Please invert the lithograph "Exhibit Niagara Manufacturing Co. Lithograph," examine the case E, as shown, and say if you do not find it to be in that position of almost the precise form of the sliding case upon "Exhibit Bailey Hydrant?"

A. I cannot make any comparison with a hydrant upside down. Our hydrants have all been made for use, and we put them in right end up.

227 C. Q. You then decline to answer my question?

A. I don't see that I can make any other answer.

Adjourned to June 12, 1884.

NEW YORK, *June* 12, 1884.

Present: Counsel as before.

Continuation of the cross-examination of the witness MATHEWS.

228 C. Q. We were speaking of the shape of the frost-case as the same appears in the "Exhibit Race & Mathews' Hydrant" as compared with that shown in the sectional view on the "Exhibit Niagara Manufacturing Company Lithograph." I produce here another lithograph, and ask you to examine the sectional view upon the same, and state how the part marked "Hydrant Case" thereon compares in shape with the corresponding part in "Exhibit Race & Mathews Hydrant."

A. The principle of the case is the same. This has not
544 the spout for passage of the waste water at the bottom of it, as shown in the "Race & Mathews Exhibit" referred to, and I do not know that the enlarged portion of the top would correspond with the enlarged portion at the top of the case on the hydrant "Race & Mathews Exhibit," as this lithograph is not made on any scale, so far as the distance from the ground line to the elbow is concerned.

229 C. Q. I refer to the contour of the hydrant-case E.

A. I understood the question, and have answered it as nearly as I can.

230 C. Q. There appears to be in sectional view upon this lithograph a contraction in its diameter a short distance below the representation of the ordinary level of the pavement, the same gradually tapering for a short distance, thence going down in full cylindrical form to the bottom. Is not this the case with the outside case upon the "Exhibit Race & Mathews Hydrant?"

A. It is.

(Complainants' counsel offers the lithograph referred to in evidence, marked "Exhibit Duval & Hunter Lithograph, W. S. B., Spec. Ex'r.")

231 C. Q. This lithograph appears to have been made after your arrangement with R. D. Wood & Co. Please state as near as you can remember how soon after.

A. A year or two, I should think; I cannot remember definitely,

It may have been the first year; probably during the first or second year. I cannot tell without reference to the books of the firm.

232 C. Q. I notice that in the hydrants in the city of Detroit, as shown by "Exhibit Defendants' Model," as well as in lithographs more recently issued by R. D. Wood & Co., the formation of
545 the frost-case is not like this Duval & Hunter lithograph. Please state when this change in the form of the outside case was made.

A. I do not remember any particular time. My impression is that as old patterns have been worn out and new ones made we carried the enlarged portion of the case down a little lower, and I think made it more tapering where it contracts than shown in the model. On our four-inch single and double hose hydrants we have for some time made the cases entirely cylindrical, of uniform diameter the whole distance from the top to the bottom. On what we call our four-inch steamer hydrant, which is a hydrant with one steam outlet or nozzle, and on our five and six inch hydrants of all varieties, we still contract the case to a certain extent below the upper part, which is enlarged to form the base at the surface of the ground.

Redirect by Mr. ROBERTS:

233 Re-D. Q. In your last preceding answer you speak of the upper part of the case being enlarged to form the base at the surface of the ground. In your answer to cross-interrogatory 164, after referring to "Exhibit Race, Mathews & Co. Lithograph," you say that the "base flange was altered in a subsequent lithograph to show the base in connection with its position on the ground more accurately." Explain what you mean in both these answers.

A. I meant that the upper end of the case was enlarged sufficiently to surround the main stock of the hydrant at the surface of the ground, thus forming the ground base; and when I referred to the subsequent lithograph I mean "Exhibit Niagara Manufacturing Co.'s Lithograph," as in that construction the enlarged upper end of the case would necessarily form the ground base of the hydrant.

SAMUEL R. C. MATHEWS.

546 Counsel for defendants puts in evidence certified copy of letters patent No. 19206, dated January 26, 1858, and granted to Washburn Race and S. R. C. Mathews for improvement in hydrants, and the same is marked "Exhibit Race & Mathews' 1858 Patent."

Also certified copy of letters patent, reissue No. 4887, dated April 30, 1872, and granted to Washburn Race and S. R. C. Mathews, said Race being assignor to said Mathews, for improvement in hydrants, and the same is marked "Exhibit Race & Mathews' Reissue of 1858 Patent."

Also certified copy of letters patent No. 96959, dated November 16, 1869, and granted to Washburn Race and S. R. C. Mathews,

assignors to said Mathews, for improvement in hydrants, and the same is marked "Exhibit Race & Mathews' 1869 Patent."

Also certified copy of letters patent No. 80143, dated July 21, 1868, and granted to Zebulon E. Coffin, assignor to Boston Machine Company, for improvement in hydrants, and the same is marked "Exhibit Coffin Original Patent."

Also certified copy of letters patent, reissue No. 5745, dated January 27, 1874, and granted to Zebulon E. Coffin, assignor to the Boston Machine Company, for improvement in hydrants, and the same is marked "Exhibit Coffin Reissue."

Also certified copy of the opinion of the Supreme Court of the United States in the case of Samuel R. C. Mathews *et al. vs.* Boston Machine Company *et al.*, and same is marked "Exhibit Supreme Court Decision, W. S. B., Spec. Ex'r."

547 "DEFENDANTS' EXHIBIT RAILROAD RECEIPT No. 1."

NEW YORK CENTRAL RAILROAD COMPANY,
LOCKPORT STATION, *Dec.* 28, 1866.

Received from the Niagara M'f'g Co., in apparent good order—

Articles.	Marked.	Weight or measure.
1 fire-hydrant, owner's risk of breakage.	Geo. W. Wilson, Esq., No. 16, Court-House, Chicago, Illinois.	

As described above, contents and value unknown, to be transported by the New York Central Railroad Company to their warehouse at Suspension Bridge, ready to be delivered to the party entitled to the same; and it is expressly stipulated and agreed that the above property is transported upon the conditions endorsed hereon, which form part of this contract and of the consideration for carrying the same, and not otherwise, and that the company is not to be held liable for the loss of said property, or for any damage or injury to the same, or for any delay in the delivery thereof by any other carrier, cartman, or freightman after the same has been loaded, shipped, or sent from the company's warehouse at Suspension Bridge aforesaid.

THE NEW YORK CENTRAL
RAILROAD COMPANY,
By M. G. LAMPKINS, *Agent.*

548 "DEFENDANTS' EXHIBIT WARD LETTER."

SUPERINTENDENT AND ENGINEER'S OFFICE,
JERSEY CITY WATER-WORKS,
JERSEY CITY, *Feb.* 6, 1867.

Niagara Man'f. Co.

GENTS: Please send us one of your fire-hydrants as a sample.

Yours truly,
JOHN F. WARD,
Sup't and Eng.

"DEFENDANTS' EXHIBIT RAILROAD RECEIPT NO. 2."

NEW YORK CENTRAL RAILROAD COMPANY,
LOCKPORT STATION, *Feb.* 11, 1867.

Received from Niagara M'f'g Co., in apparent good order:

Articles.	Marked.	Weight or measure.
1 fire-hydrant, owners' risk of breakage.	Jersey City Warter-Works, Jersey City, N. J.	

As described above, contents and value unknown, to be transported by the New York Central Railroad Company to their warehouse at Albany, ready to be delivered to the party entitled to the same; and it is expressly stipulated and agreed that the above property is transported upon the conditions endorsed hereon, which form part of this contract, and of the consideration for carrying the same, and not otherwise, and that the company is not to be held liable for the loss of said property, or for any damage or injury to the same, or for any delay in the delivery thereof, by any other carrier, cartman, or freightman, after the same has been loaded, shipped or sent from the company's warehouse at Albany aforesaid.

THE NEW YORK CENTRAL RAILROAD COMPANY,
By M. G. LAMPKINS, *Agent.*

549 "DEFENDANTS' EXHIBIT MATHEWS-BLAUVELT LETTER NO. 1."

C. J. Lloyd, president; S. R. C. Mathews, sec'y and treas.; Washburn Race, sup't

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *April* 19, 1867.

E. Blauvelt, Esq., sup't Utica Water-Works Co.

D'R SIR: Your favor of 17th inst., ordering one fire-hydrant for Utica steam cotton mill, is received. We regret to say that we have not one of that style finished, and are without power, the State authorities having drawn off the water for some necessary repairs to canal. We will be able to send one in about 10 days, if that will answer your purpose.

Have entered the order, and will ship as above unless we hear from you to the contrary. Regretting the unavoidable delay,

I am, very respectfully, yours,

S. R. C. MATHEWS, *Sec'y.*

550 "DEFENDANTS' EXHIBIT UTICA WATER-WORKS BILL."

(All claims for deductions must be made within ten days after the receipt of goods.) F. 321.

C. J. Lloyd, president; S. R. C. Mathews, sec'y and treas.; Washburn Race, superintendent.

LOCKPORT, N. Y., *May* 6, 1867.

Utica Water-Works Co., bought of Niagara Manufacturing Co., manufacturers of iron and brass lift and force pumps, fire-plugs, hydrants, garden, truck, and fire engines, iron pipe and elbows, sinks, skates, window-locks, steam engines and boilers, engine lathes, mill-work, and general machine jobbing.

Terms, cash.

[Cancelled revenue stamp.]

Sight drafts, with exchange, will be made on all unsettled bills 30 days after date of shipment of goods.

The consignees will in all cases, when property is not delivered in good order, get their damages of the carriers of the property at the time of delivery.

1 No. 1 fire-hydrant to Utica steam cotton mills	$37 50
6 left-hand nuts for top of hydrant, Nov., '64, @ 4*s*.	3 00
	$40 50

Paid by Utica steam cotton mills.

We were deprived of our power much longer than anticipated; could have sent hydrant with short elbow at once, but did not happen to have any on hand with the extension.

Respectfully yours, S. R. C. MATHEWS, *Sec'y*.

Received payment May 15, 1867.

S. R. C. MATHEWS, *Sec'y*.

551 "DEFENDANTS' EXHIBIT UTICA STEAM COTTON MILL BILL."

(Copy.)

Utica steam cotton mill to Utica Water-Works Co., Dr.

One fire-hydrant, $37.50,
Utica, May 11, 1867.
Received payment, E. BLAUVELT, *Sup't*.

[Stamp:]
E. Blauvelt, sup't.
May 11, 1867.

"DEFENDANTS' EXHIBIT MATHEWS-BLAUVELT LETTER No. 2."

C. J. Lloyd, president; S. R. C. Mathews, sec. and treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *May* 15, 1867.

E. Blauvelt, Esq., sup't Water-Works Co., Utica, N. Y.

D'R SIR: We are in receipt of your favor of 13th inst. enclosing d'ft $40.40 in settlement of acc't to date, with thanks. Hoping to be favored with further orders, we are,

Very respectfully yours, S. R. C. MATHEWS, *Sec'y.*

"DEFENDANTS' EXHIBIT MARMADUKE CLARK BILL."

Union steam cotton mills to Marmaduke Clark, Dr.

To putting down hydrant on the west side of mill, $2.00.
Rec. payment, M. D. CLARK.

(J. 238.)

552 "COMPLAINANTS' EXHIBIT COMMISSIONER'S LETTER OF DECEMBER 17, 1868."

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 17, 1868.

W. Race & S. R. C. Mathews, care of J. Frazer & Co., Rochester, N. Y.:

Please find below a communication from the examiner in relation to your application for a hydrant, filed Oct. 29, 1868.

Very respectfully,

ELISHA FOOTE,
Commissioner.

EXAMINER'S ROOM No. 96.

A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention.

(Signed) T. C. CONNOLLY,
Examiner.

"COMPLAINANTS' EXHIBIT MATHEWS-OSGOOD LETTER No. 1."

C. J. Lloyd, president; S. R. C. Mathews, sec. and treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *July* 23, 1869.

Messrs. Burke, Fraser & Osgood, Rochester, N. Y.

GENTLEMEN: I expect to be in Rochester by 10.20 a. m. train Monday, 26th inst. Please meet me at your office if convenient.

Respectfully yours, S. R. C. MATHEWS.

553 "COMPLAINANTS' EXHIBIT MATHEWS-OSGOOD LETTER No. 2."

C. J. Lloyd, president; S. R. C. Mathews, sec. & treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *Aug.* 14, 1869.

Mess. Burke, Fraser & Osgood, Rochester, N. Y.

GENTLEMEN: You will please proceed at once with our interference case. T. R. Bailey does not seem inclined to make any concession in the matter, and we wish the matter brought to a conclusion now, speedily as possible, after the long delay there has been.

It has seemed impossible for me to meet you personally this summer; have been away from home a great deal, and was prevented by business from keeping my last appointment with you. Please advise by return mail if the case has gone too far for assignment before issue, in case we obtain the patent; and also if a man can make a valid assignment of patent directly to his wife, or does the principle governing transfers of real estate apply to patents; also, if under the new bankrupt law, they can reach patents in case of involuntary bankruptcy. I ask these questions in view of our having been compelled to close our business, and, although free from direct liability, wish to be secure in future, at least so far as patents are concerned.

Respectfully yours, S. R. C. MATHEWS.

554 "COMPLAINANTS' EXHIBIT MATHEWS-OSGOOD LETTER No. 3."

C. J. Lloyd, president; S. R. C. Mathews, sec. & treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *Aug.* 23, 1869.

Messrs. Burk, Fraser & Osgood, Rochester, N. Y.

GENTLEMEN: In pending application of W. Race and myself for improvement in hydrant you will please make assignment of Mr. Race of his interest to me, to have the patent, if obtained, issued directly to me. Make the assignment in proper form and send at once for Mr. Race to execute.

Respectfully yours, S. R. C. MATHEWS.

"COMPLAINANTS' EXHIBIT OSGOOD LETTER OF AUGUST 26, 1869."

United States patent law and agency office; Burke, Fraser & Osgood; Edmund Burke, formerly Commissioner of Patents; Fraser & Osgood, solicitors of American and foreign patents.

ROCHESTER, N. Y., *Aug.* 26, 1869.

S. R. C. Mathews, Esq.

DEAR SIR: We regret that owing to absence we have been unable to answer yours of the 14th sooner.

We will present the case before the examiner again and see what can be done. There have been so many changes in the Patent Office that perhaps now the object may be accomplished without coming in conflict with Bailey; we cannot tell.

555 If you can send us two or three affidavits from disinterested parties that to their knowledge you have manufactured and applied this hydrant with the loose jacket having end play for a given time before Bailey's patent (as far back as possible) it would be of assistance to us.

The first thing to do is to present the case again, and avoid interference if we can. If it occurs it will involve some extra expense, as you will have to take testimony to prove your invention back of Bailey.

We inclose the assignment you desire. If you wish patent to issue to the assignee it must be placed on record before the issue. Record fee, $2.

A man should not assign a patent to his wife; it should be done through a third party to give a good title.

It is understood that a patent, being simply a right and not material property, is not subject to an execution, but the product of a patent, resulting from sale or manufacture, would be subject to seizure.

Very truly, BURKE, FRASER & OSGOOD.

"COMPLAINANTS' EXHIBIT MATHEWS-OSGOOD LETTER No 4."

C. J. Lloyd, president; S. R. C. Mathews, sec. & treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *August* 27, 1860.

Mess. Burke, Fraser & Osgood, Rochester, N. Y.

GENTLEMEN: Enclosed find W. Race's assignment with $2.00, fees for recording same.

Upon reference to my papers I find that my first sketch of
556 the outside detached case was made in office of Sage, Sons & Co., Buffalo, at time in ordering change in lithograph, April, 1866. Our change of pattern was made soon after, as we can prove by the pattern-maker, but we did not manufacture the new style until spring of 1867, wishing to use up all the old stock on hand first. It was not until some considerable time after we commenced the manufacture and use of them that Bailey thought of making a hydrant. I will procure the necessary affidavits soon as possible and forward to you. The pattern-maker now lives in Erie, Pa., but the testimony of Sage, Sons & Co., as to entry of order and the lithograph made by them, showing the improvement, will probably be sufficient.

Respectfully yours, S. R. C. MATHEWS.

"DEFENDANTS' EXHIBIT OSGOOD LETTER OF AUGUST 31, 1869."

United States patent law and agency office; Burke, Fraser & Osgood; Edmund Burke, formerly Commissioner of Patents; Fraser & Osgood, solicitors of Am. and foreign patents.

ROCHESTER, N. Y., *Aug.* 31, 1869.

S. R. C. Mathews, Esq.

D'R SIR: Yours is at hand, enclosing assignment and $2, the record fee thereon.

It will probably be as well to confine the affidavits you get to the time you commenced the manufacture, and to show the fact that Bailey did not take the matter up till after that.

Very truly, BURKE, FRASER & OSGOOD.

557 "DEFENDANTS' EXHIBIT GOSS AFFIDAVIT."

STATE OF NEW YORK, *County of Cayuga:*

Albert H. Goss, of Auburn, in said county, being duly sworn, deposes and says that he is secretary and treasurer of the Auburn Water-Works Co.; that on the 28th day of May, 1867, the Niagara Manufacturing Company of Lockport, N. Y. (of which company Washburn Race and S. R. C. Mathews are members), billed and shipped to this company four fire-hydrants, and on the 30th of May, 1867, twenty-six fire-hydrants, designated as No. 1 hydrants. Said hydrants were of the improved form for which said Race and Mathews have applied for a patent of the U. S., having a loose jacket situated outside of the hydrant, which loose jacket has a vertical play to compensate for the action of the frost. Said hydrants were, in a few days after said shipments, set and put in use by this company.

A. H. GOSS.

Subscribed and sworn before me this 14th day of September, 1869.

F. G. DAY,

Justice of the Peace of said County.

558 "DEFENDANTS' EXHIBIT WARD AFFIDAVIT."

STATE OF NEW JERSEY, *County of Hudson:*

John F. Ward, of Jersey City, in said county, being duly sworn, deposes and says that he is the superintendent of the Jersey City Water-Works Co.; that he is acquainted with a hydrant manufactured by the Niagara Manufacturing Co. of Lockport, State of New York, and invented by Washburn Race and S. R. C. Mathews, of same place. Part of said invention consists in the employment of a loose jacket or case outside of the hydrant, which loose jacket or case has an end or vertical play to compensate for the heaving of the frost. Deponent says that some of these hydrants were purchased of said Niagara M'f'g Co. by the Jersey City Water-Works Company in or during the months of March and April, 1867; and deponent

says he first saw one or more of these hydrants made by said company on or about the 10th day of March, 1867.

JOHN F. WARD.

Subscribed and sworn before me this 27th day of September, 1869.

HENRY TRAPHAGEN,
Master in Chancecy of N. J.

559 "DEFENDANTS' EXHIBIT OSGOOD-WIEDERSHEIM LETTER."

United States patent law and agency office; Burke, Fraser & Osgood; Edmund Burke, formerly Commissioner of Patents; Fraser & Osgood, solicitors of American and foreign patents.

ROCHESTER, N. Y., *Oct.* 5, 1869.

DEAR SIR: We applied for patent some time since for Race & Mathews on hydrant in which the outer case or jacket B has a vertical movement to compensate for the heaving of the frost. It was refused on T. R. Bailey's patent. Bailey lives in the same town, and took his patterns from R. & M.'s manufactured articles.

He does not claim or show the end movement in his papers or drawings, but only in his model. In view of this accidental exhibition we claim that we ought to have the patent without interference, especially as R. & M. have an older patent showing the loose case, but no end movement.

Please present the case to the examiner again, and urge these reasons, at the same time presenting the accompanying affidavits. If he will not then grant patent, request an interference with Bailey, and we [will] take evidence.

How does Keech's case of extension come on? It is time a decision was given, as the patent will expire in little more than a week.

Very truly, R. F. OSGOOD.

J. A. W., Esq.

560 "COMPLAINANTS' EXHIBIT WIEDERSHEIM LETTER No. 1."

WASHINGTON, D. C., *Oct.* 8, 1869.

GENT: Your favor of 5th is received. Race & Matthews will receive attention as per your instructions.

I am pleased to announce that Keech's extension is all right. You can send the final fee of $50. R'p't of Shaffer enclosed.

Very truly yours, J. A. W.

Mess. B., F. & O., Roch., N. Y.

I sent you acceptances of services in Lytle, &c., water-wheel (by yesterday's mail).

Race & Mathews, Keech, Shaffer.

"COMPLAINANTS EXHIBIT WIEDERSHEIM LETTER No. 2."

WASHINGTON, D. C., *Oct.* 20, 1869.

GENT: I am pleased to inform you that Race & Mathews hydrant is allowed on the original claim.

I feel somewhat confident of securing 5 claims in Morrison's reissue elbow joint.

Adams' carbonizing peat appar. is allowed. Circulars enclosed.

J. A. W.

Mess. B., F. & O., Roch., N. Y.

J. A. WIEDERSHEIM,
Solicitor of Patents.

Oct. 20, 1869.

Race & Mathews, Morrison, Adams (Peat).

561 "DEFENDANTS' EXHIBIT OSGOOD LETTER OF OCTOBER 21, 1869.

United States Patent law and agency office; Burke, Fraser & Osgood; Edmund Burke, formerly Commissioner of Patents. Fraser & Osgood, solicitors of Am. and foreign patents.

ROCHESTER, N. Y., *October* 21, 1869.

S. R. C. Mathews, Esq.

DEAR SIR: I am pleased to inform you that we have got the case allowed.

Those affidavits fixed it.

If you wish patent issued at once send us the balance of Gov't fees and incidental expenses, which are $25.

Very truly,

R. F. OSGOOD.

P. S.—The claim is the same as originally made.

562 "COMPLAINANTS' EXHIBIT WIEDERSHEIM LETTER No. 3."

WASHINGTON, D. C., *Oct.* 29, 1869.

GENTLEMEN: Herewith please find reports of pro. ex. of car-coupling and bale-tie.

Also circulars for Briggs' safes.

Race & M. hydrant.

I secured the 2d and 4th claims in Morrison's reissue—that is to say, as per enclosed copy of claims, the 4th being a combination of the 4th and 5th presented by you, and the 2d, as you suggested. The case now stands with five claims.

The box with nine cases arrived; all filed. Hager's design is allowed; Krake's extension papers duly received and filed.

J. A. W.

Messrs. J. F. & Co., Roch., N. Y; J. Fink, A. D. McMaster, M. Briggs, Race & Mathews, H. B. & C. L. Morrison, Hager, Krake.

"COMPLAINANTS' EXHIBIT MATHEWS-OSGOOD LETTER No. 5."

C. J. Lloyd, president; S. R. C. Mathews, sec. and treas.; Washburn Race, sup't.

NIAGARA, N. Y., Oct. 27, 1869.

Mess. Burke, Fraser & Osgood, Rochester, N. Y.

GENTLEMEN: I have just ret'd home after an absence of three weeks. My wife informs me that there was a letter from you
563 notifying me in regard to issue of patent, but it has been mislaid. If there was anything special in it further than the above notice please send duplicate. I wish the patent to issue without delay. Send statement and I will remit upon rec'pt; am glad the examiner concluded to allow it upon the strength of the affidavits. Of course, the patent granted to T. R. Bailey cannot be rendered void in any way so far as he could show any invention, and I presume that even in the points copied from us in case of infringement by him it would be necessary to take testimony again as to priority of invention, yet I think we will have no trouble again from that source.

Respectfully yours, S. R. C. MATHEWS.

Will soon require your services in another case.

"COMPLAINANTS' EXHIBIT MATHEWS-OSGOOD LETTER No. 6."

C. J. Lloyd, president; S. R. C. Mathews, sec. and treas.; Washburn Race, sup't.

NIAGARA MANUFACTURING CO.,
LOCKPORT, N. Y., *Oct.* 29, 1867.

Mess. Burke, Fraser & Osgood, Rochester, N. Y.

GENTLEMEN: Enclosed find draft, $254, J. W. Helmer & Co., No. 8067, on Nat. B'k Commerce, New York, am't bal. Government fees and expenses on patent. With thanks for promptness, I am,

Very respectfully yours, S. R. C. MATHEWS.

564 "COMPLAINANTS' EXHIBIT WIEDERSHEIM LETTER No. 4."

J. A. Wiedersheim, solicitor of patents.

WASHINGTON, D. C., *Nov.* 5, 1869.

GENTS: Your favor is received.

Palen's harness is allowed.

A small amendment in Taylor's sharpening harv. knives will secure its allowance.

Race & M. 2d Gov't fee is paid in. Shaeffer's appeal is taken. The proper amendment is filed. My best will be done.

Spaulding's cultivator will receive good attention.

An abstract in Tupper's will be sent to you. Tupper's model is truly cylindrical or round, not oval.

Jones & Boyce will soon be reached.

Very truly, J. A. W.

Messrs. J. F. & Co., Roch., N. Y.; Palen, A. P. Taylor, Race & Mathews, H. E. Shaffer, S. T. Spaulding, Morrison, Jones & Boyce.

"DEFENDANTS' GLEASON-BAILEY LETTER."

ERIE, PA., *April* 28, '76.

Mr. T. R. Bailey, Esq.

SIR & BRO.: Yours of the 26 just came to hand.

The last work I done for R. M. & Co. was in 1866. I altered those *patrons* before I left them.

My address: J. M. Gleason, Peach street, between 18 and 19 str.

Fraternally yours, J. M. GLEASON.

565 "DEFENDANTS' EXHIBIT ISAAC S. HOBBIE'S FORMER DEPOSITION."

Deposition of Isaac S. Hobbie.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

NEW YORK, *June* 8, 1876.

1 Int. What is your name, age, residence, and occupation?

A. Isaac S. Hobbie; fifty-six; Elmira, N. Y.; I am manufacturing wooden water and gas pipe, and have been for eighteen years.

2 Int. Were you ever connected in a business capacity with the Elmira water-works; and, if so, when?

A. In 1860 myself, Gen. Swan, and Archelaus Wyckoff constructed the Elmira water-works, and afterwards, until 1868, I had the entire management of the works; I was one of the directors and the principal owner.

3 Int. Did you during this period purchase any hydrants of the Niagara Manufacturing Company of Lockport, N. Y., of which Washburn Race and S. R. C. Mathews were principal owners; and, if so, when was the first purchase made?

A. In 1866 or 1867 we purchased four or five hydrants of that pattern of those parties. The first one was received at Elmira on the 7th day of March, 1867.

4 Int. How do you fix the date on which the first hydrant so purchased was received? And if you have any memorandum by which to assist your memory state what it is.

A. I have in my hand the original day-book kept by myself, on which is written by me, under date of March 7, 1867, the following entry:

566 ELMIRA, 1867.

March 7. Elmira Water Co. Dr.

To cash p'd ft. on hydrant ---------- $2 37
" " cartage " ---------- 60

I have charged the Elmira Water Company with having paid out of funds in my hands the amount charged for transportation of one hydrant for them. "Pd." means paid, and "ft." means freight in this entry.

5 Int. Do you remember where this hydrant was set, and have you been able to identify it?

A. It was set on the corner of Water and Cross (now Market) streets, and I have identified it, and it is now there. (The witness identifies "Exhibit 8.")

6 Int. When was this hydrant, "Exhibit 8," taken up bodily, and had it been in use up to that time?

A. Some time this spring it was taken up, and a few weeks ago I saw it in the ground before it was taken up. At the request of S. R. C. Mathews, some two years ago, I put a private mark on it with a cold chisel by which to identify it. It was in use from the time it was first put down till the time it was taken up, a few weeks ago.

No cross-examination.

I. S. HOBBIE.

Attest: WM. BLAIKIE,
Special Examiner.

UNITED STATES OF AMERICA, }
Massachusetts District, } *ss:*

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the deposition of Isaac S. Hobbie, in the cause of Mathews *et al. vs.* The Boston Machine Company *et al.*, in said circuit court determined.

567 In testimony whereof, I hereunto set my hand and affix the seal of said circuit court, at Boston, in said district, this twelfth day of May, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[Seal of the Circuit Court of the U. S. for Dist. of Mass.]

JOHN G. STETSON, *Clerk.*

I, Thomas L. Nelson, judge of the United States for the district of Massachusetts, certify that the foregoing attestation of John G. Stetson, clerk of the circuit court of the United States for said district, is in due form.

THOMAS L. NELSON,
Judge of the U. S., Mass. Dist.

"DEFENDANTS' EXHIBIT REID FORMER DEPOSITION. W. S. B., Spec. Ex'r."

Deposition of James Reid.

NEW YORK, *June* 9, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

1 Int. What is your name, age, residence, and occupation?

A. James Reid; twenty-five; Jersey city; board of public works, Jersey city; am a clerk.

2 Int. Have you in your custody the minutes of the board of water commissioners of Jersey City, covering the year 1867?

A. I have, sir.

3 Int. Do you find therein memoranda of the presentation
568 and allowance of claims on account of the Niagara Manufacturing Company; and, if so, will you state under what date the first of such memoranda occurs, and what it is?

A. I do, sir; in minutes of the regular meeting held March 4, 1867, and in order of business of presentation of claims, I find a claim of the Niagara Manufacturing Company for $35 was presented and referred to a committee on works in and out of the city. At the next regular meeting, held March 18, 1867, in the order of business of auditing of claims, I find the claim of the Niagara Manufacturing Company, $35, previously referred, was reported correct and ordered paid.

Int. 4. Will you refer to the minutes and state what you find relating to the presentation and allowance of the next claim in order of the same company, and under what dates?

A. At the regular meeting, held April 1, 1867, in order of business of presentation of claims, I find a claim of the Niagara Manufacturing Company for $92.40 was presented and referred to the committee on works in and out of the city; and at an adjourned regular meeting, held Thursday, April 18, 1867, in order of business of auditing of claims, I find claim of the Niagara Manufacturing Company for $92.40, previously presented, was reported correct and ordered to be paid.

Int. 5. Do you find in these minutes of the board of water commissioners record of the presentation of subsequent claims by the Niagara Manufacturing Company, and of the allowance of the same during the year 1867?

A. I do, sir.

No cross-examination.

JAMES REID.

569 UNITED STATES OF AMERICA, *Massachusetts District*, } *ss:*

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the deposition of James Reid, taken and

filed in the cause in equity entitled S. R. C. Mathews *et al. vs.* Boston Machine Company *et al.*, in said circuit court determined.

In testimony whereof I hereunto set my hand and affix the seal of said circuit court, at Boston, in said district, this second day of June, A. D. 1884, and of the Independence of the United States the one hundred and eighth.

[Seal of U. S. Cir't Court, Mass. Dist.]

JOHN G. STETSON, *Clerk.*

I, Thomas L. Nelson, judge of the United States for the district of Massachusetts, certify that the foregoing attestation of John G. Stetson, clerk of the circuit court of the United States for said district, is in due form.

THOMAS L. NELSON,
Judge of the U. S., Mass. Dist.

570 DEFENDANTS' EXHIBIT RACE & MATHEWS 1858 PATENT."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Washburn Race and S. R. C. Mathews, January 26, 1858, number 19206, for improvement in hydrants.

In testimony whereof I, R. G. Dyrenforth, acting Commissioner of Patents, have caused the seal of the Patent Office to be affixed this fifth day of June, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[SEAL.] R. G. DYRENFORTH,
Acting Commissioner.

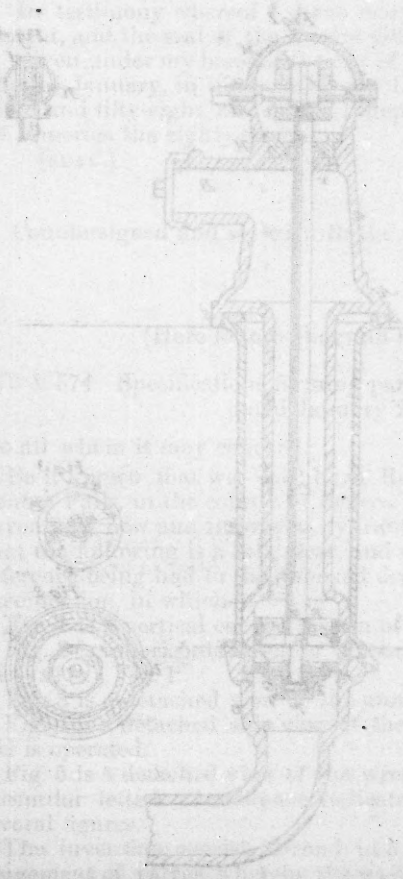
571 No. 19,206.

(2–157.)

UNITED STATES OF AMERICA:

To all persons to whom these letters patent shall come:

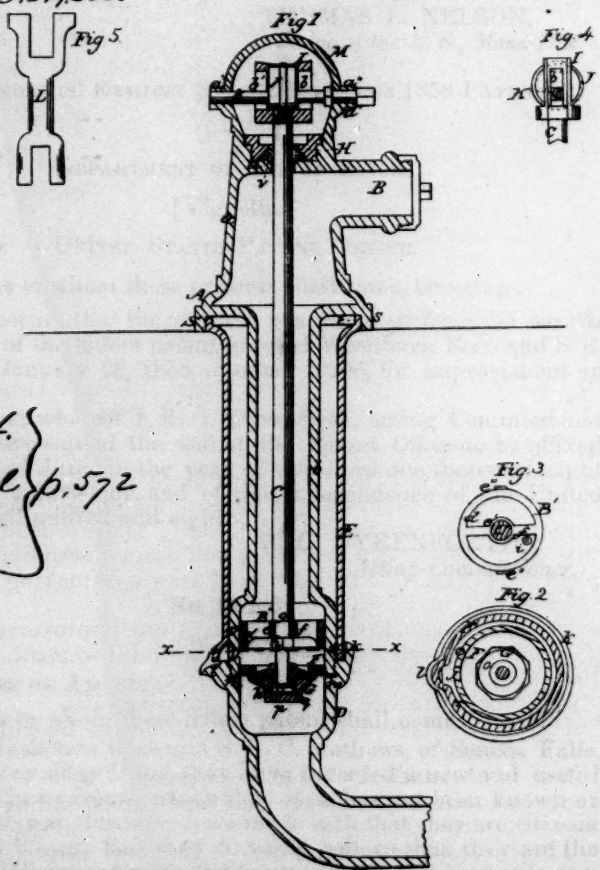
Whereas Washburn Race and S. R. C. Mathews, of Seneca Falls, New York, have alleged that they have invented a new and useful improvement in hydrants, which they state has not been known or used before their application; have made oath that they are citizens of the United States; that they do verily believe that they are the original and first inventors or discoverers of the said improvement, and that the same hath not, to the best of their knowledge and belief, been previously known or used; have paid into the Treasury



Race & Matthews Hydrant.

Patented Jun. 26. 1858.

No 19,206.



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of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Washburn Race and S. R. C. Mathews, their heirs, administrators, or assigns, for the term of fourteen years from the twenty-sixth day of January, one thousand eight hundred and fifty-eight, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Washburn Race and S. R. C. Mathews, in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington this twenty-sixth day of January, in the year of our Lord one thousand eight hundred and fifty-eight, and of the Independence of the United States of America the eighty-second.

[SEAL.] JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office:
J. HOLT,
Commissioner of Patents.

(Here follows diagram marked p. 572.)

573 & 574 Specifications forming part of Letters Patent No. 19206, dated January 26, 1858

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and improved hydrant; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Fig. 1 is a vertical central section of our improvement.

Fig. 2 is a horizontal section of our improvement, taken in the line (x) (x), Fig. 1.

Fig. 3 is a detached view of the annular valve.

Fig. 4 is a detached side view of the device by which the valve-rod is operated.

Fig. 5 is a detached view of the wrench.

Similar letters of reference indicate corresponding parts in the several figures.

The invention consists, second, in a novel construction and arrangement of valves, whereby the waste pipe or orifice is opened as the induction pipe is closed, and *vice versa*, and the perfect operation of the valves ensured, both being operated by a single lever or wrench.

The invention consists, third, in a peculiar construction and arrangement of parts, as hereinafter shown, whereby the hydrant may be readily detached from its base and removed or withdrawn without the trouble and expense of excavating.

To enable those skilled in the art to fully understand and construct our invention we will proceed to describe it.

A represents the case of the hydrant, the upper part of which (a) may be of any appropriate and ornamental form, provided with one or more horizontal nozzles B. The lower part (b) of the case is smaller in diameter than the upper part, and is of cylindrical form; the part (b) is below the surface of the ground and the part (a) above it.

The lower part (c) of the part (b) of the case is enlarged somewhat in diameter and an annular valve, B′, is fitted therein. This valve is formed of a flat ring (d) grooved circumferentially in its exterior surface to receive a packing (e), which may be made of leather or other suitable material. The ring (d) is provided with a cross-bar (f), having a hub or boss (e′) at its center in which the lower part of a rod C is fitted, said rod having a shoulder (g) formed on it, which serves as a bearing for the upper edge of the hub or boss, and a nut (h) is placed on the rod below the hub or boss, said nut fitting on a screw-thread. By turning the nut in the proper direction the valve B′ may be firmly secured on the rod. Through the ring (d) of the valve B a screw (i) passes, said screw passing through the ring at a point directly opposite an opening (j) in the part (c) of the case.

The lower end of the part (c) has a screw-thread formed on it and is screwed into the upper end of a curved or bent pipe D, which is fitted permanently in the ground and communicates with the "main." The upper end of the pipe D is provided with a flanch (k) and a small spout or nozzle (l). The flanch (k) extends all around the pipe D and it receives the lower end of a cylindrical jacket, E, which is permanently fitted in the ground. An annular piece of packing (m) is interposed between the upper end of the pipe D and the lower end of the part (c) of the case.

Within the lower part of the part (c) of the case a screw-thread is formed to receive an annular valve-seat, F, said seat being screwed into the lower end of (c).

G represents a valve which is formed of two parts (n) (o), the part (n) being of cup form and containing a nut (p) by which the valve G is secured to the lower end of the rod C, a screw-thread being on the lower end of the rod. The other part (o) of the valve is a cap which is screwed down upon a packing (q), which, when said valve is closed, bears against the seat F, as plainly shown in Fig. 1. The valve G is allowed to turn freely on the rod C.

Around the outer side of the part (c) of the case A a groove (r) is made, said groove being in the same plane with the opening (j) in the part (c) and the spout or nozzle (l) on the pipe D.

The lower end of the upper part (a) of the case A is provided with a flanch (s), which fits over a flanch (t) on the upper end of the jacket E.

In the upper end of the part (a) of the case A there is screwed a

cap, H. The cap H is screwed into a recess (u) in which packing (v) is placed, the above parts forming a stuffing-box.

575 To the upper end of the rod C a yoke I is attached and a cam or eccentric J is fitted within the yoke. The cam J is placed upon a shaft, K, which has its bearings in a flanch (a′) on the upper part (a) of the case A. One end of the shaft K projects beyond the edge of the flanch and has a square formed on it to receive a wrench, L, shown in Fig. 5. The sides of the yoke I are slotted vertically, as shown at (b′), Fig. 4, the shaft K passing through said slots.

The yoke I is covered by a cap, M, the lower edge of which is provided with a flanch (a″), which is fitted on the flanch (a′) of the case and secured to it by screw-bolts.

The ring (d) of the annular valve B′ may be provided with lugs (e″), as shown in Fig. 3, said lugs fitting in grooves in the case in order to prevent the valve from turning casually.

The wrench L has a fork at each end, one fork fitting square on the shaft K and the other fork fitting the nut (p). The upper end of the cap H also has grooves or recesses made in it to receive one end of the wrench L for the purpose of turning the cap.

The operation is as follows:

By applying the wrench L to the square on the shaft K the cam or eccentric J may be turned without raising or moving the cap M, and the rod C may be raised and lowered thereby. When the rod C is raised the valve G bears against its seat F and the water from the "main" is prevented from passing into the case A of the hydrant.

And when the valve G is closed the valve B′ is above the opening (j), and therefore the water within the case A may pass out through the opening (j) into groove (r) and out at spout or nozzle (l). When the rod C is lowered the valve G opens and the annular valve B′ passes over the opening (j), closing the same while the water from the "main" passes up through the seat F, through the case A, and out through the nozzle B. Thus it will be seen that when the water is admitted into the case the escape passage (j) is closed, and when the water is shut off the said passage (j) is opened. In case any of the parts require to be repaired the whole hydrant may be raised, the jacket remaining stationary, by merely unscrewing the lower part of (c) from the upper end of the pipe D. This is effected, of course, by turning the case A. By this means no excavating is necessary in order to repair the hydrant, as it may be removed and replaced without difficulty.

We do not claim broadly, for we are aware that hydrants have been constructed and their parts arranged in various ways so that they could be removed for repairs without excavating, the parts being rendered capable of being withdrawn from the case; but we are not aware that an arrangement like ours has ever been used for effecting the purpose. Neither do we claim the casing of hydrants when the case and base or pipe D are in one piece and permanently attached to the pipe from the "main," as that has been previously done. Neither do we claim separately the arrangement of the valves B′ G, but we claim—

1st. The annular valve B′ and the disc-valve G attached to the rod C, in combination with the escape or leak opening (j) and seat F, the above parts being arranged to operate as and for the purpose set forth.

2d. The combination of the case A, induction pipe D, provided with flanch (k), and the jacket E, when arranged as herein shown and described to effect the desired end, to wit, the ready removal when necessary of the case and working parts of the hydrant for repairs.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
WHITING RACE.
W. S. DA LEE

Ex'd: C. F., E. L. L.

576 "DEFENDANTS' EXHIBIT RACE & MATHEWS REISSUE OF 1858 PATENT."

(65.)

[Vignette.]

THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted S. R. C. Mathews, dated April 30, 1872, No. 4887, for improvement in hydrants.

In testimony whereof I, J. M. Thacher, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this ninth day of June, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States the ninety-eighth.

[SEAL.]

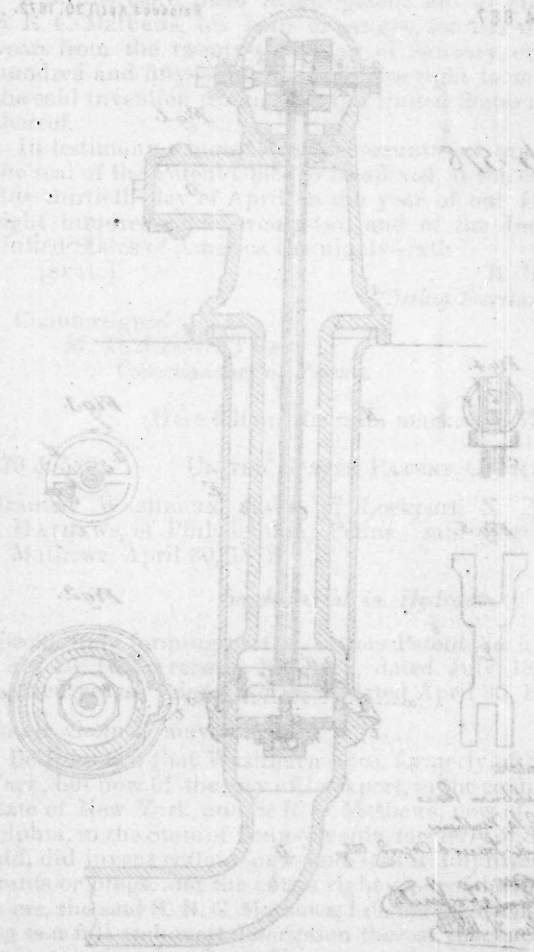
J. M. THACHER,
Acting Commissioner.

577 No. 4887, Reissue.

UNITED STATES OF AMERICA.

To all to whom these presents shall come:

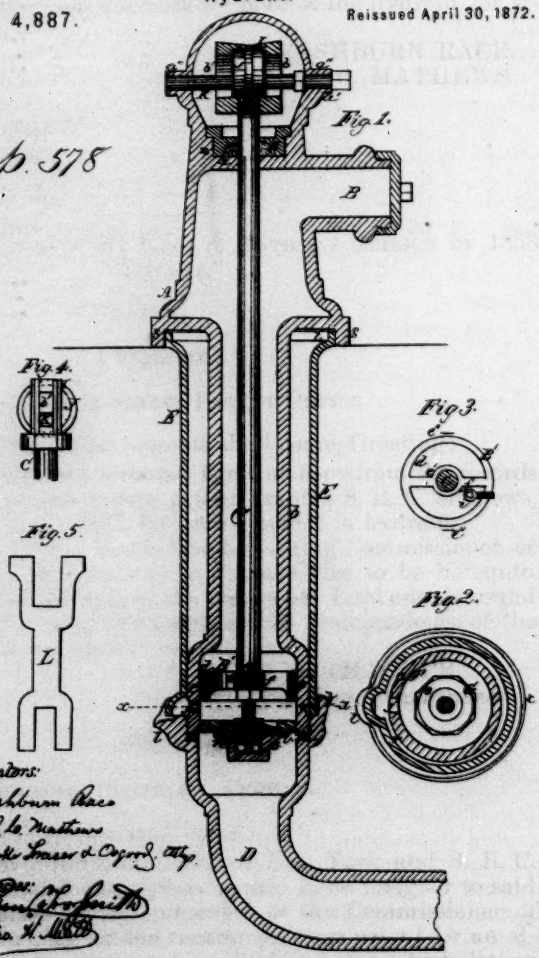
Whereas Washburn Race, of Lockport, New York, and S. R. C. Mathews, of Philadelphia, Pennsylvania, said Race assignor to said Mathews, said assignee having presented to the Commissioner of Patents a petition praying for the reissue of letters patent for an alleged new and useful improvement in hydrants, for which letters patent were issued to them, dated January 26, 1858, the same surrendered and new letters issued to said assignee, dated July 18, 1871, and extended seven years from January 26, 1872, which last letters having been surrendered the same have been canceled, and new



RACE & MATHEWS.
Hydrant.

No. 4,887. Reissued April 30, 1872.

No 494
Flower et al
v
Detroit et al
p. 578



Inventors:
Washburn Race
S. R. C. Mathews
Per Burke Fraser & Osgood, Attys.
Witnesses:
Geo. H. Mitchell

letters ordered to issue to him on an amended specification, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas upon due examination made the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said S. R. C. Mathews, his heirs or assigns, for the term of twenty-one years from the twenty-sixth day of January, one thousand eight hundred and fifty-eight, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this thirtieth day of April, in the year of our Lord one thousand eight hundred and seventy-two, and of the Independence of the United States of America the ninety-sixth.

[SEAL.] B. R. COWEN,
Acting Secretary of the Interior.

Countersigned:
M. D. LEGGETT,
Commissioner of Patents.

(Here follows diagram marked p. 578.)

579 & 580 UNITED STATES PATENT OFFICE.

Granted WASHBURN RACE, of Lockport, N. Y., and S. R. C. MATHEWS, of Philadelphia, Penna., said Race assignor to said Mathews, April 30, 1872.

Improvement in Hydrants.

Specification forming part of Letters Patent No. 19206, dated January 26, 1858; reissue No. 4475, dated July 18, 1871; extended seven years; reissue No. 4887, dated April 30, 1872.

To all whom it may concern:

Be it known that Washburn Race, formerly of Seneca Falls, New York, but now of the city of Lockport, in the county of Niagara and State of New York, and S. R. C. Mathews, now of the city of Philadelphia, in the State of Pennsylvania, formerly of Seneca Falls aforesaid, did invent certain new and useful improvements in fire hydrants or plugs, and the entire right thereof having been assigned to me, the said S. R. C. Mathews, I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification:

Fig. 1 is a central vertical section of said improved hydrant; Fig. 2, a horizontal section in line *x x*; Fig. 3, a plan of the annular yoke and waste-valve; Fig. 4, a view of the device by which the valve-rod is operated; Fig. 5, a view of the wrench.

Like letters indicate corresponding parts in all the figures.

The invention consists, first, in the employment of a loose case or jacket around the body of the hydrant, whereby both the hydrant and case or the hydrant alone may be detached and removed, or withdrawn, as hereinafter set forth; second, in the employment of a dead-air or non-conducting chamber around the stock of the hydrant, below the surface of the ground, by means of the inclosing jacket; third, in the use of a guide or yoke for steadying the valve-rod and centering the valve; fourth, in the manner of constructing the valve for facilitating the removal and replacing of the packing without removing the valve-rod; fifth, in the construction and arrangement of the main valve and a waste-valve, whereby the latter is opened as the induction-pipe is closed, and *vice versa*.

In the drawing A indicates the hydrant, the upper portion *a* being of any appropriate form, and provided with one or more nozzles, B, and the lower part or stock *b* being preferably of smaller diameter and extending below the surface of the ground, and attached to the pipe D by a screw-joint or in any other suitable manner. Outside the stock *b* is situated a case or jacket, E, which forms an independent piece in itself, inclosing the stock of the hydrant and protecting it from the packing of earth and from the effects of frost. This jacket extends to the surface of the ground or a little above, where it may form a loose connection with the part A of the hydrant, so that the latter, with the stock *b*, may be detached from the main and removed without disturbing the jacket. The annular chamber of confined air between the jacket and stock forms a superior non-conductor for the protection of the hydrant from freezing—one which is better than any packing material such as is usually employed, which absorbs moisture and thereby loses its non-conducting qualities. In the lower part of the stock *b* is situated an annular valve, B′. This consists of a ring, *d*, which is preferably grooved circumferentially in its exterior surface to receive a packing, *e*, to be used in connection with the valve G for a purpose presently to be described. The ring *d* is provided with one or more cross-bars,
581 *f*, connecting it with a hub or boss, *e′*, at its center, in which the lower part of a rod, C, is fitted, said rod having a shoulder, *g*, formed on it, which serves as a bearing for the upper edge of the hub or boss, against which it is held by a nut, *h′*. Through the ring *d* of the valve B′ a set-screw, *i*, passes at a point directly opposite an opening, *j*, in the stock for the purpose of setting it tightly against the waste-opening in case of wear. The ring *d* of the annular valve B′ may be provided with lugs, *e″*, as shown in Fig. 3, said lugs fitting in grooves in the case in order to prevent the valve from turning casually. This yoke is fitted in a bored portion of the stock, and, as the rod C is raised and lowered in opening and closing the valve G, it serves as a guide and support for steadying the valve-rod and preventing vibration by bearing equally against all sides of the interior of the stock or chamber in which it works, and insures the perfect centering of the valve on its seat at all times when closed. Within the lower part of the stock *b* a screw-thread is formed to receive an annular valve-seat, F. A valve, G, is provided, which is

formed of the parts *n o*, the part *n* being of cup form and containing a nut, *p*, by which the valve G is secured to the rod C, a screw-thread being on the lower end of the rod. The other part *o* of the valve is a cap, which is screwed down upon a packing, *q*, which, when said valve is closed, bears against the seat F, as plainly shown in Fig. 1. The valve G is allowed to turn freely on the rod C. This construction obviates a heretofore-existing difficulty, viz., that when the valve-packing had to be replaced it was necessary to remove the valve-rod, and after putting in new packing true it in a lathe. By my construction the packing can be replaced by merely unscrewing the part *n* without removing the rod, and no fitting is afterward required. Around the lower end of the stock a groove, *r*, is made, said groove being in the same plane with the opening *j* on the part *b*, and the spout or nozzle *l* on the pipe D. In the upper end of the part *a* of the case A there is screwed a cup, H. The cup H is screwed into a recess, *u*, in which packing, *v*, is placed, the above parts forming a stuffing-box. To the upper end of the rod C a yoke, I, is attached, and a cam or eccentric, J, is fitted within the yoke. The cam J is placed upon a shaft, K, which has its bearings in a flanch, *a''*, on the upper part *a*. One end of the shaft K projects beyond the edge of the flanch and has a square formed on it to receive a wrench, L, as shown in Fig. 5. The sides of the yoke I are slotted vertically, as shown at *b'*, Fig. 4, the shaft K passing through said slots. The yoke I is covered by a cap, M, the lower edge of which is provided with a flanch, *a''*, which is fitted to the flanch *a'* of the case and secured to it by screw-bolts. The upper end of the cup H has grooves or recesses made in it to receive one end of the wrench L for the purpose of turning the cup.

The operation is as follows: By applying the wrench L to the square on the shaft K the cam or eccentric J may be turned without raising or moving the cap M, and the rod C may be raised or lowered thereby. When the rod C is raised the valve G bears against its seat F, and the water from the main is prevented from passing into the case A of the hydrant, and when the valve G is closed the valve B' is above the opening *j*, and therefore the water within the case A may pass out through the opening *j* into groove *r*, and out at spout or nozzle *l*. When the rod C is lowered the value G opens and the annular valve B' passes over the opening *j*, closing the same, while the water from the main passes up through the seat F, through the case A, and out through nozzle B. Thus it will be seen that when the water is admitted into the case the escape-passage *j* is closed, and when the water is shut off the said passage *j* is opened.

A great advantage of the case or jacket E results from its being free or independent of the other parts, so that if any of the parts require repairs the hydrant can be removed from place by simply disconnecting from the main pipe D and without disturbing the case E or the earth around it; or, if the main pipe itself or its parts, at the connection of the hydrant with it, are deranged, the loose case can be removed with the hydrant, which would not be the case were it to form a solid part of the main. These advantages result from the special use of the detached case or jacket.

I am aware that hydrants have been constructed with a case or extension which forms a fixed part of the main or elbow to
582 facilitate the removal of the hydrant without excavating. Such we do not claim. But I am not aware that a loose or detached case has ever before been used to form a confined air-chamber around the stock, and so that both the hydrant and the case, or the hydrant alone, can be removed; therefore—

What I claim as the invention of the said Washburn Race and myself is—

1. A protecting case or jacket, E, surrounding the body of the hydrant and forming a separate and removable part from the elbow D, substantially as and for the purpose set forth.

2. The independent case or jacket E supported on the arm D of the main pipe at or near the junction of the hydrant stock therewith, substantially as shown and described.

3. The annular yoke B′ on the valve-rod C for steadying the rod C and centering the valve G, and also preventing any vibration of said rod or valve when the hydrant is opened, as set forth.

4. The valve G, constructed of the two parts *n o* and packing *q*, in combination with the rod C, substantially as and for the purpose set forth.

5. The annular valve B′ and the disk-valve G attached to the rod C, in combination with the escape or leak openings *j*, when arranged to operate as and for the purposes set forth.

S. R. C. MATHEWS.

Witnesses:
OSCAR R. MEYERS.
CHAS. D. CLARK.

583 "DEFENDANTS' EXHIBIT RACE & MATHEWS' 1869 PATENT."

(65.)

THE UNITED STATES PATENT OFFICE.

[Vignette.]

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted S. R. C. Mathews, dated November 16th, 1869, No. 96959, for improvement in hydrants.

In testimony whereof I, J. M. Thacher, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this ninth day of June, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States the ninety-eighth.

[SEAL.]

J. M. THACHER,
Acting Commissioner.

584 UNITED STATES OF AMERICA.

To all to whom these letters patent shall come:

Whereas Washburn Race and S. R. C. Mathews, of Lockport, New York, have alleged that they have invented a new and useful improvement in hydrants (they having assigned their right, title, and interest in said improvement to S. R. C. Mathews) and have made oath that they are citizens of the United States; that they verily believe they are the original and first inventors or discoverers of the said improvement, and that the same hath not to their knowledge and belief been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said S. R. C. Mathews, his executors, administrators, or assigns, for the term of seventeen years from the sixteenth day of November, one thousand eight hundred and sixty-nine, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, on this sixteenth day of November, in the year of our Lord one thousand eight hundred and sixty-nine, and of the Independence of the United States of America the ninety-fourth.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior

Countersigned and sealed with the seal of the Patent Office.

SAM'L S. FISHER,
Commissioner of Patents

585 UNITED STATES PATENT OFFICE.

WASHBURN RACE and S. R. C. MATHEWS, of Lockport, New York, assignors to S. R. C. Mathews, November 16, 1869.

Improvement in Hydrants.

The schedule referred to in these Letters Patent and making part of the same.

To all to whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Lockport, in the county of Niagara and State of New York, have invented a new and useful improvement in hydrants; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification:

Figure 1 is a sectional elevation of our improved hydrant.

Figure 2, a horizontal cross-section.

Like letters of reference indicate corresponding parts in both figures.

We obtained a patent, dated January 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and imbedded in the ground.

Our present invention is an improvement upon that, and consists in so forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings—

A indicates the hydrant, the part *a* resting above ground, and the stock *b* being imbedded.

The loose case or jacket B, which surrounds the stock, is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders *g g*, which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply enclosed.

The lower end of the case preferably shuts into a flange *h*, of the main elbow connection C, and it may be centered to prevent axial turning by a sleeve, *c*, which rests in a groove, *d*.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant.

The heaving by frost is a constant source of trouble and expense in other hydrants, by causing the elbows at the bottom, connecting with the "main," to break, also throwing the hydrant itself out of position. While we remedy this difficulty by giving the desired end play, we, at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

Another great advantage of our invention is that the hydrant can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention, and desire to secure by letters patent, is—

The detached case B, so combined and arranged with hydrant A as to have an end play or vertical motion of several inches, to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses;
JOHN VAN HORN.
ELLSWORTH ELY.

(For drawing, see page XXXIII.)

586 "DEFENDANTS' EXHIBIT COFFIN ORIGINAL PATENT."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Boston Machine Company, July 21, 1868, number 80143, for improvement in hydrants.

In testimony whereof I, R. G. Dyrenforth, acting Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 5th day of June, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[SEAL.] R. G. DYRENFORTH,
Acting Commissioner.

587 No. 80143.

(2–155.)

UNITED STATES OF AMERICA.

To all to whom these letters patent shall come:

Whereas Zebulon E. Coffin, of Boston, Massachusetts, has alleged that he has invented a new and useful improvement in hydrants (he having assigned his right, title, and interest in said improvement to Boston Machine Company), and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said Boston Machine Company, their successors and assigns, for the term of seventeen years from the twenty-first day of July, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a

description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this twenty-first day of July, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-third.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

A. M. STOUT,
Acting Commissioner of Patents.

(Here follows diagram marked p. 588.)

589 & 590 UNITED STATES PATENT OFFICE.

ZEBULON E. COFFIN, of Boston, Massachusetts, assignor to Boston Machine Company. Letters Patent No. 80143, dated July 21, 1868.

Improvement in Hydrants.

The schedule referred to in these Letters Patent and making part of the same.

Be it known that I, Zebulon E. Coffin, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful improvement in fire plugs or hydrants; and I do hereby declare that the following is a full, clear and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation.

Figure 2 is a sectional view on line Y Z.

Figure 3 is a sectional view on line W X.

Figure 4 is a plan of the cover.

Figure 5 is a sectional elevation of the upper part of a flush-top hydrant, which may be used instead of the post-hydrant.

The part C is the base or bottom, *o* being a tie or strengthening piece in the water-way, and one of several guides for the valve H.

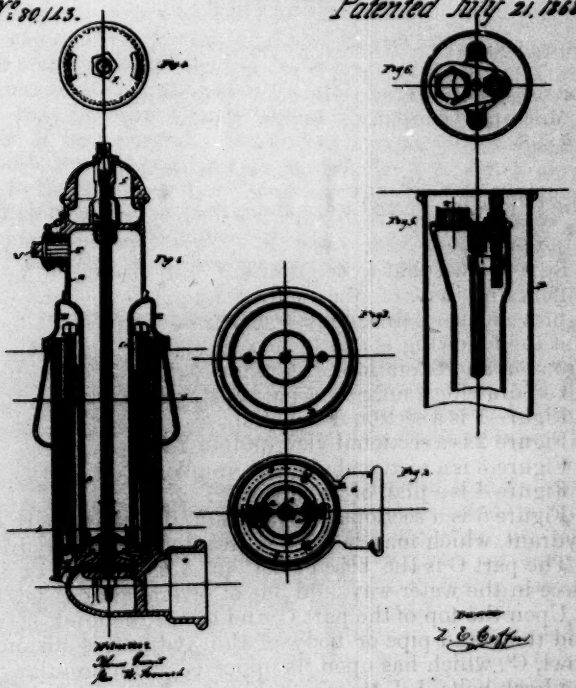
Upon the top of the part C, and above the joint, between the base and the stand-pipe or body of the hydrant, is an enlargement or bowl, C′, which has upon its upper edge an annular projection for the hook-bolts L L to take hold of to secure the body of the hydrant to its base. This bowl receives the waste water discharged through the pipes M M, and discharges it through the holes *n n n*. This bowl should be made just large enough to receive the lower end of the stand-pipe, and leave sufficient room for the necks of the hook-bolts, which are flattened opposite the projection, that they may not occupy more room than is necessary to proper strength, so that when all the parts are in their proper place the hook-bolts are prevented

No. 494.
Flowers et al.
v.
Detroit et al.
} p. 588.

Z. E. Coffin.

Hydrant,

No. 80,143. Patented July 21, 1868.



description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this twenty-first day of July, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-third.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

A. M. STOUT,
Acting Commissioner of Patents.

(Here follows diagram marked p. 588.)

589 & 590 UNITED STATES PATENT OFFICE.

ZEBULON E. COFFIN, of Boston, Massachusetts, assignor to Boston Machine Company. Letters Patent No. 80143, dated July 21, 1868.

Improvement in Hydrants.

The schedule referred to in these Letters Patent and making part of the same.

Be it known that I, Zebulon E. Coffin, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful improvement in fire plugs or hydrants; and I do hereby declare that the following is a full, clear and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation.

Figure 2 is a sectional view on line Y Z.

Figure 3 is a sectional view on line W X.

Figure 4 is a plan of the cover.

Figure 5 is a sectional elevation of the upper part of a flush-top hydrant, which may be used instead of the post-hydrant.

The part C is the base or bottom, *o* being a tie or strengthening piece in the water-way, and one of several guides for the valve H.

Upon the top of the part C, and above the joint, between the base and the stand-pipe or body of the hydrant, is an enlargement or bowl, C′, which has upon its upper edge an annular projection for the hook-bolts L L to take hold of to secure the body of the hydrant to its base. This bowl receives the waste water discharged through the pipes M M, and discharges it through the holes *n n n*. This bowl should be made just large enough to receive the lower end of the stand-pipe, and leave sufficient room for the necks of the hook-bolts, which are flattened opposite the projection, that they may not occupy more room than is necessary to proper strength, so that when all the parts are in their proper place the hook-bolts are prevented

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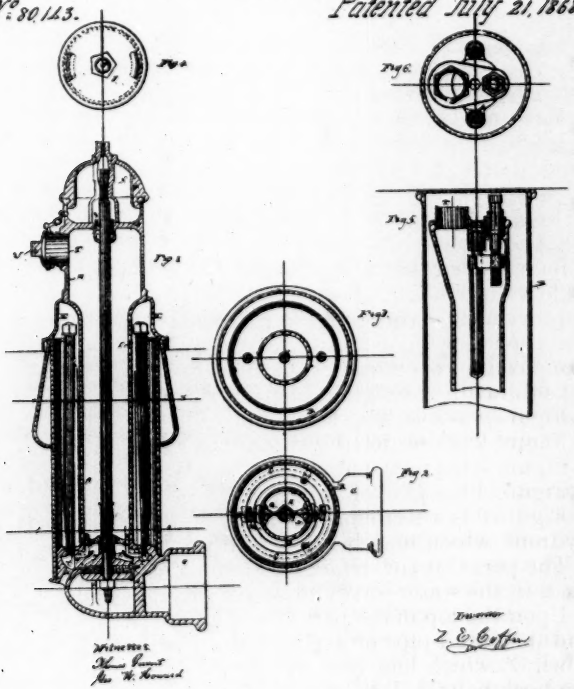
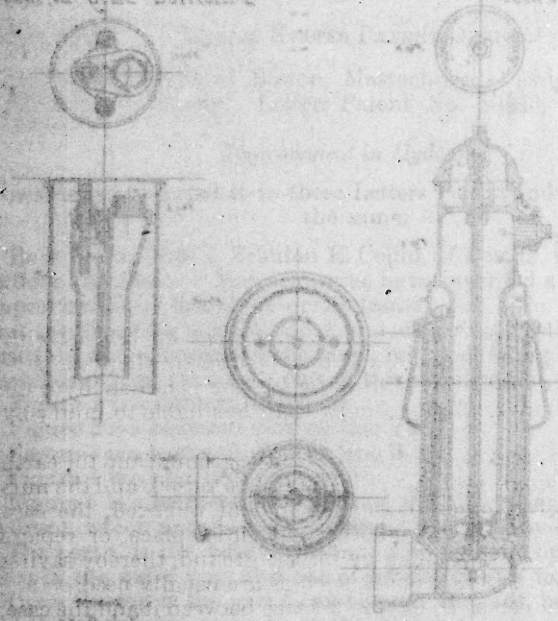
Z. E. Coffin,

Hydrant,

No. 80,143. Patented July 21, 1868.





from getting out of place, the lower end of the stand-pipe occupying the space between the hook-bolts.

n n n are holes for the waste water to pass through. *a* is an annular projection on the top of the base for the hook-bolts L L to take hold of to secure the body to the base. This projection is made all the way round the base, that the hydrant-pipe may be conveniently placed at any required angle to the main, as it cannot be when the common lugs or bolts in use are used.

H is the valve for closing the water-way; M M are waste-pipes, to free the hydrant from water when not in use; I I, the valves, to close the waste-pipes when the hydrant is in use; K is the valve-stem; A is the body or stand-pipe of the hydrant; B is the hydrant case; D is the frost-jacket; 1 is the hose-nozzle; U, the cap to hose-nozzle; S, gland to stuffing-box; G, the nut by which the valve is worked through the rod or stem K. The lower end of this nut, which has its bearing upon the body of the hydrant, is so enlarged as to make a cap or cover for the stuffing-box and gland S, and by removing the small screw at the top the screw upon the rod K may be oiled without removing the cover F; also, by removing the cover F the nut G may be conveniently removed, and the stuffing-box around the rod K be repacked. It also has a pocket or enlargement above the female thread, and between it and the top, which serves as an oil-cup to the screw on the top of the rod K. F, the cover, which is held in its place by inclined lugs or bolts, and answers two purposes, viz., to hold the nut G in its place, and cover the top of the hydrants; E, a ring that forms a part of the case.

591 *Advantages Gained by this Invention.*

First. The valve closes the water-way at a point on a level with the top of the pipe, so that the water may be drawn, when the hydrant is not in use, much lower than when the common hydrant bend is used, thereby rendering the hydrant less liable to injury by frost.

Second. The hydrant being firmly set in the ground, and the earth filled in to the ground-level, the ring E may be raised, and the nuts on the hook-bolts L L loosened, and the hydant removed, the case remaining in the ground, and another put in its place, or repairs made, and replaced without digging up the ground, thereby saving the expense of wood or brick boxes, such as are usually used.

Third. The frost-jacket D, having a space between it and the case, prevents the earth from freezing to the case and the case being lifted by the frost, and is also a protection to the hydrant from freezing.

Fourth. The waste-pipes, by this arrangement, can be made with direct, clean openings, and the valves, being opened by a positive movement, and not by springs or gravitation, are sure to free the hydrant of water at the right time, and are not likely to choke up, as in other devices in use for this purpose.

Claims.

1. I claim the combination of the base or bottom of the hydrant with the body of the hydrant, hook-bolts, waste pipe or pipes, and waste-valves, hydrant-valves, and outside case, all constructed in the manner and for the purpose set forth.

2. I claim the hook-bolts L L, in combination with the body A and bowl C′, having an annular projection, *a*, when the parts are constructed substantially in the manner and for the purpose set forth.

3. I claim the nut G, in connection with the rod or valve-stem K and body A, when the parts are constructed and arranged to operate substantially as described.

Z. E. COFFIN.

Witnesses:
THOMAS GAUNT.
GEO. W. HOWARD.

592 "DEFENDANTS' EXHIBIT COFFIN REISSUE. W. S. B., Spec. Ex'r."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted the Boston Machine Company, January 27, 1874, number 5745, for improvement in hydrants

In testimony whereof I, R. G. Dyrenforth, acting Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 5th day of June, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

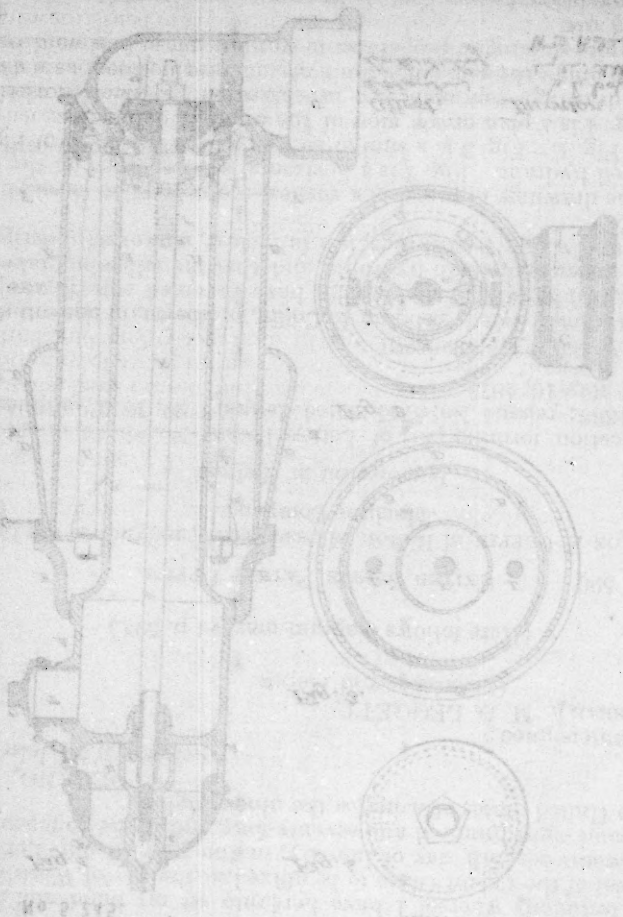
[SEAL.] R. G. DYRENFORTH,
Acting Commissioner.

593 No. 5745, Reissue.

THE UNITED STATES OF AMERICA.

To all to whom these presents shall come:

Whereas Zebulon E. Coffin, of Boston, Massachusetts, assignor to the Boston Machine Company, has presented to the Commissioner of Patents a petition praying for the reissue of letters patent for an alleged new and useful improvement in hydrants (for which letters patent were issued to said assignee, dated July 21, 1868, which letters having been surrendered, the same have been canceled and new letters ordered to issue to it on an amended specification), a descrip-



No. 494
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v
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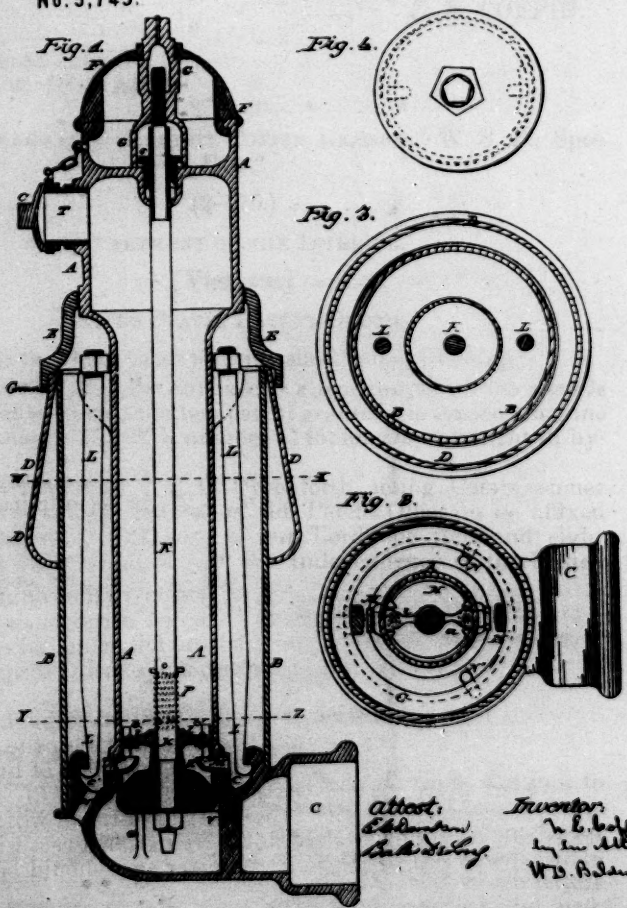
} p. 594

Z. E. COFFIN.

Hydrants.

No. 5,745.

Reissued Jan. 27, 1874.



Attest:
E. A. Donahue
Balt. D. Long

Inventor:
Z. E. Coffin
by his Atty
W. D. Baldwin

tion of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said The Boston Machine Company, its successors or assigns, for the term of seventeen years from the twenty-first day of July, one thousand eight hundred and sixty-eight, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this twenty-seventh day of January, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States of America the ninety-eighth.

C. DELANO,
Secretary of the Interior.

Countersigned:
[SEAL.] M. D. LEGGETT,
Commissioner of Patents.

(Here follows diagram marked p. 594.)

595 & 596 UNITED STATES PATENT OFFICE.

ZEBULON E. COFFIN, of Boston, Massachusetts, assignor to the Boston Machine Company.

Improvement in Hydrant.

Specification forming part of Letters Patent No. 80143, dated July 21, 1868; reissue No. 5745, dated January 27, 1874; application filed May 10, 1873.

To all whom it may concern:

Be it known that I, Zebulon E. Coffin, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in hydrants, and that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

In the drawings Figure 1 is a vertical central section through my improved hydrant. Fig. 2 is a horizontal section taken on the line Y Z of Fig. 1. Fig. 3 is a similar section on the line W X of Fig. 1, and Fig. 4 is a plan or top view of the cover.

The drawings represent my invention in the form in which I prefer to apply the same, but the hydrant therein shown as a whole is not quite so long in proportion to its diameter as it should be for ordinary use.

My invention relates, first, to improvements in what are usually termed "frost-jackets;" second, to improvements in the mode of

securing the hydrant proper, through which the water flows to the main or elbow leading from the main; and, third, to an improvement in the contrivances for actuating the main valve.

Prior to the date of my invention frost-jackets or cases on hydrants were well known. These frost-jackets surround the hydrant proper, an air-space existing between the two, and when unattached to the main or elbow, and when not secured to the hydrant proper, serve two purposes—the one to prevent freezing of water in the hydrant proper, the other to prevent the same from being lifted by the frost—the action of the frost being exerted upon the frost-jacket to heave it, while the hydrant proper remains at rest. If the frost-jacket be attached to the main or elbow it lifts the elbow and causes, or tends to cause, leaks. If it be attached to the hydrant proper or so connected with it that the jacket cannot lift without lifting the hydrant then the jacket displaces, or tends to displace, the hydrant and cause leaks, and is useless, except as a preventer of the freezing of water in the hydrant proper.

Hydrants have been of late years constructed with waste-valves; and the frost-jacket, when waste-valves are employed, is of little or no use in preventing the freezing of water in the hydrant, as the water above the frost-line runs out through the waste-valves as soon as the main valve of the hydrant is shut.

Hydrants used prior to the date of my invention in New York and other cities had frost-jackets not attached to the elbow or main, and rising above the top of the hydrant proper, with an air-space between the jacket and hydrant throughout their lengths, and with an aperture through which the nozzle to which the hose is attached passed. This aperture or slot was longer than the diameter of the nozzle, and the jacket could rise under the influence of frost and be driven into place again without displacing either the hydrant or the main or elbow leading from it.

The form of jacket above referred to involved one other difficulty in its use, which was this, that when the jacket did heave earth would fall in below its bottom around the hydrant proper, and this earth in some cases prevented the driving down of the jacket and was an obstacle in removing and replacing hydrants.

I have endeavored to secure in my hydrant the advantages resulting from the use of all known forms of jacket and to provide an additional one, premising before proceeding to the description, that frost seldem extends so low as the top of the elbow or other attachment to the main to which the hydrant is secured, and that
597 a degree of frost which would exert great heaving power near the surface would have no effect at the depth of the bottom of the hydrant.

The hydrant to which these first features of my invention are applied may be of any proper construction, secured in any usual way to the elbow or casting attached to the main.

The frost-jacket is, for reasons hereafter explained, made in two pieces, B and E, both of which are tubular. The lower piece, B, stands on the elbow and is not attached to it. The upper piece is supported by the lower one and hugs the hydrant closely above the

surface of the ground and below the hose-plug, so far below it that any heaving of the jacket or casing by frost cannot cause it to strike the plug, and thereby lift, or tend to lift, or displace the hydrant, and strain the joints of the hydrant with the elbow, or of the elbow with the main. Although the upper part of the jacket hugs the hydrant it does not fit it so tightly but that the former can slide on the latter, moving up and down without tending to lift the hydrant; and the jacket is made to fit thus closely in order to prevent cold air from dropping down between the hydrant and the jacket.

In order to hinder heaving of this jacket, except in very heavy and unusual frost, and thereby prevent earth from falling between the lower end of the jacket and the elbow, I have contrived a supplementary frost-jacket, D, which is a short tube or cylinder outside of the jacket, and so supported that it can rise and be driven down without disturbing the lower end of the jacket. In frosts which do not extend below the bottom of this supplementary frost-jacket it alone will be disturbed, and the jacket proper will remain stationary; and, consequently, dirt will not fall in between its bottom and the top of the elbow, and between the jacket and the hydrant.

The upper part of the frost-jacket is made separate from the lower, in order that it may be lifted to give access to the bolts, hereinafter described, without stirring the lower part of the jacket, thereby permitting one hydrant to be removed, and another to be put in its place, without disturbing the lower part of the jacket and the surrounding earth.

The general idea of making a jacket in two pieces, so as to effect the result, is not new with me. Frost-jackets, which extended over the top of the hydrant, had been made in two pieces or lengths prior to the date of my invention, and were as well known as jackets in one piece.

In heavy frosts, extending down to the elbow, or nearly so, and below the supplementary casing, the frost-jacket proper will be lifted or heaved by the frost, and then my contrivance acts as if the supplementary frost-jacket were removed, or never had been made.

The hydrant proper, with its plug T and valve-rod K, stands on a basin, C, making part of the elbow. This basin has a rim or inwardly-projecting flange around its top. Below the upper end of the frost-jacket there are lugs with holes in them, cast in one piece with the hydrant. Through these holes pass hook-bolts L L, screwed on their upper ends and with their hooks catching under the flange. A ring or packing is put on the basin, the hook-bolts are hooked in place, the hydrant is slipped down between the bolts, and the nuts are screwed up. The nuts are easily got at by lifting the upper portion of the frost-jacket without disturbing the lower part thereof, and consequently, when the water is shut off from the main, a defective hydrant can be removed and one in good condition put in its place without disturbing the lower part of the jacket or the earth surrounding it.

In former hydrants where the jacket was made in two lengths the bolts were short and bolted to a flange at the bottom of the hydrant and to the flange of the elbow; and it was necessary to

use a long key for the purpose of turning the nuts, which, owing to their position, soon rusted fast, and were unscrewed with difficulty, if at all. Further, owing to the fact that the ledge or flange surrounds the basin, the hook-bolts can be shifted to any part of the periphery, and the hose-plug set at any desired angle with the main.

The main valve is shown at H H; ribs to guide it at O O; ribs to guide the cross-head of the waste-valves at O′ O′. This cross-head I I surrounds the valve-stem, and is held down by a spiral spring, and has attached to its lower side the waste-valves, which close the tops of the waste passages or pipes M M, when the main valve is wide open or partly open. These waste-pipes discharge into the bowl, and thence into the soil through the orifice N. The valve-stem passes through a stuffing-box in the top of the hydrant
598 proper, A, whose gland is shown at S. Upon the top rests a nut, G, which extends through the top of a cap, F, which may be held to the top of the hydrant, so as to prevent the nut from rising, in any proper way, preferably by hooks F′ attached to the cap, and taking under a flange projecting inwardly, and making part of the hydrant's top. This fastening is a sort of bayonet joint.

The construction of the nut is peculiar: Its bore is enlarged at its lower end, so that it acts as a cover for the stuffing-box; it extends above the cap, so as to be capable of being taken hold of by a wrench or spanner, and it has a hole bored through the top, which may be closed by a small plug. The screw on the valve-stem can be oiled through this hole, which is enlarged as it descends, so as to form an oil-cup, and when the cap is removed, and the nut unscrewed, the stuffing-box can be reached and packed.

I claim as my invention—

1. A frost-jacket, substantially such as is herein described, closely surrounding the hydrant above ground and below the hose-plug, and extending to the elbow or other casting to which the lower part of the hydrant is secured, said jacket being attached neither to the elbow nor the hydrant, and therefore having the capacity of being lifted by frost without disturbing the hydrant or the elbow or the joints, and also preventing the cold air from dropping down into the space between the hydrant and the jacket.

2. In combination with a frost jacket, substantially such as is herein described, a supplementary frost-jacket, substantially such as described, attached neither to the frost-jacket nor the hydrant, but free to move in respect to both, whereby the jacket is protected from the heaving action of moderate degrees of frost, and the results described obtained.

3. In combination with lugs at or near the surface of the ground, and with long bolts holding down a hydrant to the elbow or main, and provided with screw-nuts at their upper ends, a frost-jacket made in at least two pieces in such manner, substantially as specified, that the upper may be lifted, the bolts unscrewed, and the hydrant removed and another reset without displacing the lower part of the frost-jacket, the combination being substantially as described.

4. Hooked bolts, in combination with a flange attached to the

casting upon which the hydrant stands, and with the hydrant proper, whereby the hose-plug may be set any desired angle with the main, the combination being substantially such as herein set forth.

5. The nut for actuating the valve-stem, constructed substantially as described, combined with the stuffing-box and valve-stem, substantially as specified.

Z. E. COFFIN.

Witnesses:
JABEZ S. HOLMES,
N. AUSTIN PARKS.

599 "DEFENDANTS' EXHIBIT SUPREME COURT DECISION."

Supreme Court of the United States. October Term, 1881.

SAMUEL R. C. MATHEWS and Others, Appellants,
vs.
THE BOSTON MACHINE COMPANY and Others. } No. 35.

Appeal from the circuit court of the United States for the district of Massachusetts.

Mr. Justice Bradley delivered the opinion of the Court:

This case comes before us on appeal from a decree of the circuit court for the district of Massachusetts, dismissing a bill in equity, filed by the appellants, in which they prayed for an injunction and account of profits for an alleged infringement of two certain patents granted to Washburn Race and S. R. C. Mathews, one dated April 30th, 1872—being a reissue of a patent granted January 26, 1858—and the other dated November 16, 1869. The defendants, in answer, denied that Race & Mathews were the first inventors of the thing patented, referring to several prior patents, and naming prior instances of knowledge and use of the alleged invention, and amongst other things setting up a patent issued to one Zebulon E. Coffin, dated July 21, 1868. They also denied that the reissued patent was for the same invention as the original; and denied infringement. The complainants filed a supplemental bill, alleging that since the filing of the original the defendants had procured a reissue
600 of Coffin's patent, which contained substantially the same invention as that described in the plaintiff's patent of 1869; but that Race & Mathews were the first and original inventors of the thing patented, and therefore they prayed that the Coffin patent might be declared void.

The Race & Mathews patents, on which this suit was brought, relate to casings or jackets around hydrants, and to the valves for letting on the water when wanted for use and for draining it out of the hydrant when not in use. It is conceded that the objects of the casing are to prevent freezing in and around the hydrant by surrounding it with a volume of dead air to keep it free from contact with the surrounding earth, and to enable the hydrant to be taken out of the ground without removing the surrounding earth. If the

earth is in contact with the hydrant it lifts the hydrant out of place by the action of the frost, and has to be dug away when repairs or other operations have to be performed below the surface. Many casings formerly used were fastened in different ways to the hydrant, and, when lifted by the frost, raised the latter also, causing breakage or leakage or other damage by the displacement; and, also, the hydrant could not be disconnected from the main and removed without removing the casing also.

So far as the improvement in the casing is concerned, the principal thing claimed to be effected by the patentees, Race & Mathews, is the placing of the case in position without attaching it to the hydrant, or to the elbow, or the main pipe below, so that the hydrant, whilst being protected from the frost and the surrounding earth, may be lifted out separately, and so that the lifting of the case by the frost and surrounding earth will not disturb the hydrant. These objects are effected by two different devices:

601 first, by causing the case to rest loosely on a flange projecting from the elbow of the main, or otherwise, and allowing it to slide up the hydrant which it surrounds, and which is enlarged at that point for holding the valves; secondly, by allowing the upper end of the case to embrace the hydrant—enlarged at that point also—and to slide up and down upon it like a sleeve. Of course, the case must fit the hydrant snugly enough to keep out the influx of cold air above and of dirt below, but not so tight as to prevent the hydrant from being lifted out, or the case from slipping up and down upon it. This is the thing which the complainants contend that Race & Mathews invented.

As first patented in 1858 the invention did not accomplish the object. The bottom of the case, it is true, surrounded the hydrant like a sleeve and rested on a flange projecting from the elbow, which allowed the hydrant to be separately moved without removing the case, but the top of the case was enclosed in a flange projecting from the enlarged part of the hydrant above, like the rim of a hat, but turned down over the top of the case, so that the latter, though unconnected otherwise with the hydrant, yet if it were lifted by the frost it would press upwards against the flange and raise the hydrant also. This difficulty was remedied by the invention of the improvement patented in 1869, by which the top of the case was made to surround and enclose the upper enlargement of the hydrant, and to slide over it like a sleeve, as before stated. The reissued patent of 1872 substantially embraces both features of the improved case, namely, its disconnection with the hydrant both above and below, and places much stress on the dead-air chamber as a protection from frost, and on the protection of the hydrant below from the surrounding earth, although no claim is based on these last features.

602 The defendants contend that this reissue patent is not for the same invention as that which is described and patented in and by the original patent of 1858; that the latter made no mention of the dead-air chamber formed by the casing as a protection of the hydrant from the frost, and that it contained no indication that the case should fit closely to the hydrant so as to prevent the pas-

sage of cold air into the chamber from without. But to these objections it is answered that the case invented by Race & Mathews in 1858 was a machine or apparatus having or being susceptible of various functions, some of which were well known and needed not to be mentioned or described. Amongst these known functions of the hydrant casing were the formation of a dead-air chamber to prevent freezing, and the protection of the hydrant from contact with the surrounding earth. The patent of Coffin, on which the defendants rely, states that prior to the date of his invention frost jackets or cases on hydrants were well known; that they surrounded the hydrant proper, an air space existing between the two. It was not necessary for the patentees, Race and Mathews, to enumerate all the known functions of these frost-jackets in their original patent, and, as no claim was based upon them, it could not be hurtful to enumerate them in the reissued patent.

But the complainants, in their reissued patent, have split up and divided the elements of their invention, and claimed them separately and not as a combination. Of course this enlarges the scope of their patent. The separate claims embrace fewer elements in combination than were embraced in the claim of the original patent. No one could infringe the original patent unless he used all the elements of the combination. Any one will infringe the reissue who uses any of those elements which are now separately claimed.

603 The original patent had not a single claim in reference to the case, being a claim for a combination between the hydrant, the induction pipe provided with a flange to sustain the jacket, and the jacket itself, when arranged, as described in the specification, to effect the desired end, to wit, the ready removal of the hydrant. This, in the reissued patent, is divided into two claims, namely, first, the jacket surrounding the hydrant and forming a separate and removable part from the elbow, substantially as and for the purpose set forth; secondly, the independent jacket supported on the arm or elbow of the main at or near the junction of the hydrant, substantially as shown and described—that is to say, there is a claim of a jacket separate and removable from the elbow and of a jacket resting on the elbow. It cannot be denied that each of these separate claims is much broader than the claim in the original patent, and they are put forth in the reissue fourteen years after the original was granted. The latter showed on its face that these broad claims were not made, and if the patentees were really the inventors of an independent jacket standing loosely on the elbow of the main, when apprised that it was not claimed in the patent, they ought to have used due diligence in surrendering it. The case clearly comes within the ruling lately made in Miller *vs.* The Bridgeport Brass Company.

There is still another objection to the claims in question. There is a wide departure from the original invention, in this, that the subject of the latter was a jacket or casing, whose top was enclosed in and covered by a flange projecting from the hydrant, which effectually prevented the removal of the jacket without removing the hy-

drant also, and which caused the hydrant to be raised when
604 the jacket was lifted by the frost. In the reissued patent nothing is said of this arrangement of the top of the jacket, and the claims ignore it altogether; so that, as already intimated and claimed in the complainants' patent of 1869, which slides like a sleeve over the hydrant at the top as well as bottom, the reissue is not only for a broader claim made many years after the original was granted, but is for a different invention. Therefore, so far as the jacket is concerned, we think it cannot be sustained.

But the patent of 1869 still remains. That was for an improvement by which it was proposed to liberate the top of the case from the flange which covered and enclosed it and make it surround the hydrant and slip over it like a sleeve. The claim is for "the detached case *b*, so combined and arranged with the hydrant *a* as to have an end play or vertical motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock or hydrant." Had this patent been confined to a hydrant jacket closed at the bottom and resting on a flange of the main elbow, perhaps it might have been sustainable. But it is not so confined. It is only said that the lower end preferably shuts into a flange of the elbow. The specification, it is true, commences with a statement that the invention was a mere improvement upon that described by the patent of 1858, which was for a case closed at the bottom by standing on a flange. But before getting through there is an evident departure from that and an indication that the patentees had begun to entertain views of an expanded construction intended to be placed on the original patent, which afterwards found expression in the reissue of 1872. The claim of the patent of
605 1869 as it stands covers any and every loose jacket having an end play to compensate for the heaving of the frost, and having the upper end passing around the hydrant. It covers the old New York wooden case or housing, which was in public use for many years before Race & Mathews gave their attention to the subject. We are of opinion, therefore, that this patent cannot be sustained.

As to the valve apparatus, the object of which is to let the water in the body of the hydrant escape when the main valve is closed and to prevent any escape of water when the main valve is open, since Race & Mathews were not the original inventors of this process, but only of a particular arrangement of valves to effect it, they can only properly claim the specific arrangement which they invented; and in view of the older valve in the St. Louis hydrants, which that of the defendants most nearly resembles, and of the fact that the valve used by the defendants is not in the specific form of that invented by Race & Matthews, we think that the defendants are correct in their position that they do not infringe the patent of Race

M.A.M.E.W.S.

PATENTED

JAN. 25TH 1858 & NOV. 16TH 1869

FIRE HYDRANT

Manufactured by

R.D. WOOD & Co.

FOUNDRIES { MILLVILLE, FLORENCE, N.J.

No. 400 Chestnut Street

Also Manufacturers of PHILADELPHIA, PA.

CAST IRON

WATER & GAS PIPES & FITTINGS.

LAMP POSTS, METER LAMPS &c.

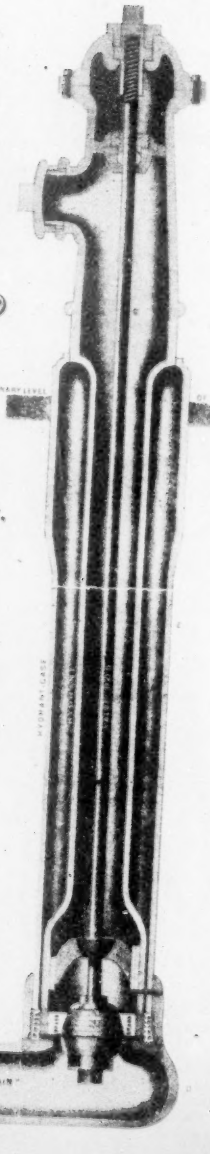
OUR FIRE HYDRANT

Has been thoroughly tested and proved to be

SUPERIOR TO ANY OTHER IN USE!

FOR THE FOLLOWING REASONS

CLASSIFICATION OF HYDRANTS



& Mathews, as that patent must be construed in order to be sustained.

The decree of the circuit court must be affirmed.

True copy. Teste:

[Seal Supreme Court.]

JAMES H. McKENNEY,
Clerk Supreme Court U. S.

(Here follows diagrams marked pp. 606 and 607.)

608–613 Circuit Court of the United States, Eastern District of Michigan. In Equity.

JAMES FLOWER *et al. vs.* CITY OF DETROIT *et al.*

Evidence for defendants, taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before John G. Stetson, examiner, at Boston, Mass., June 14, 1884.

Present: Edward J. Hill, Esq., of counsel for plaintiffs; George L. Roberts, Esq., of counsel for defendants.

CHARLES CARR, a witness produced and sworn in behalf of the defendants, testified as follows:

1 Q. Please state your name, age, residence, and business.

A. Charles Carr; 50; Boston, Mass.; general manager of Boston Machine Manufacturing Company.

2 Q. With what manufacturing company were you connected in business previously to the present one and in what capacity and how long?

A. I have been superintendent or general manager of the Boston Machine Company since 1865 down to about a year ago, when this new company was organized.

3 Q. Were you one of the defendants in the suit of Samuel R. C. Mathews *et al. vs.* Boston Machine Company *et al.*, formerly pending in the U. S. circuit court for the district of Massachusetts?

A. I was, and had the management of that defense.

614 4 Q. Please look at the two patents now shown you, marked, respectively, "Defendants' Exhibit Coffin Original Patent" and "Defendants' Exhibit Coffin Reissue," and state whether the Boston Machine Company therein mentioned as the grantee under assignment from Zebulon E. Coffin is the same corporation as that of which you were superintendent and general manager from 1865 to 1883.

A. It is the same corporation.

5 Q. Did the Boston Machine Company manufacture hydrants under these Coffin patents; and, if so, during what period of time?

A. They commenced the manufacture in 1868 and have continued it until last year, not always applying the extra outside case in their construction of hydrants, but always using the inside main case.

6 Q. By what letters are the extra outside case and the inside main case respectively designated in the "Exhibit Coffin Reissue?"

A. The extra outside case is designated by the letter D and is called in the patent a supplementary frost-jacket. The inside main case is marked B.

7 Q. Please look at the "Exhibit Board Model Boston Machine Co. Hydrant" and state how the hydrants manufactured by the Boston Machine Company under the Coffin patents, when the supplementary frost-jacket was not used, compared in construction with what is illustrated and represented by this board model, understanding that the connecting side pieces or rails are only mechanical expedients for holding the top and bottom parts together.

A. It is a correct representation of their construction.

8 Q. Explain the offices of the cap which is secured to
615 the top of the movable casing of these Boston Machine Company hydrants, and which in the "Exhibit Coffin Reissue" is designated by the letter E.

A. It was so made that we might raise it and reach the long bolts which held the post to the base.

9 Q. By the post, you mean, do you, the hydrant-stock which extends from the top of the ground down to the elbow?

A. I do.

10 Q. Explain a little further the mode of attachment of the hydrant-stock to the elbow.

A. The end of the hydrant-stock and the base were faced in a lathe; a gasket was placed between these faces, and the long bolts referred to drew them to a water-tight joint.

11 Q. The screws which are run through slots in this board model of the Boston Machine Company's hydrant, and which hold in place the rails connecting the upper and lower portions of the casing, allow only a limited end movement to the parts of the casing so represented. How was it in fact with the casing upon the hydrants manufactured by the Boston Machine Company; what was the capacity of such casings for being heaved endwise by the action of frost?

A. The limit of the rising of the cases, the only limit it had, was in coming in contact with the hose-nozzles, which would be in any case six or eight inches.

12 Q. How much of an end play could such casings have without opening the annular joints at top and bottom?

A. About two-and-a-half inches in actual practice—from two to two-and-a-half inches.

13 Q. Were the hydrants of the Boston Machine Company's
616 manufacture, the construction of which is represented by "Exhibit Board Model Boston Machine Co. Hydrant," those which were complained of in the suit of Samuel R. C. Mathews *et al. vs.* Boston Machine Company *et al.*, already mentioned as infringements upon the patents therein sued on, namely, reissue No. 4887 and patent No. 96959, each granted upon the invention of Washburn Race and Samuel R. C. Mathews?

A. I recognize these as the patents, and those were the hydrants complained of as infringements.

14 Q. To what extent had the Boston Machine Company manufactured such hydrants as are represented by "Exhibit Board Model Boston Machine Co. Hydrant," from 1868, when such manufacture was begun, down to March 14, 1876?

(Objected to as immaterial.)

A. Three thousand, or perhaps a few more.

15 Q. And how many such hydrants did the Boston Machine Company manufacture from March 14, 1876, down to about a year ago, when it went out of business?

(Same objection.)

A. One thousand, or a few more.

16 Q. When were all these hydrants, for the most part, put in use?

A. They were sent in all directions—more in New England, and some West. In various cities and towns in the United States.

17 Q. Do you know Mr. James Flower, one of the plaintiffs in the present case, who is here present; and, if so, how long have you been acquainted with him?

A. I have known him since about 1872, when I met him in Detroit, and have met him once since in this city, Boston. I can't give the date — 1872, but about that. I think as far back as 1872.

617 18 Q. Have you examined the letters patent No. 75344, dated March 18, 1868, granted to T. R. Bailey, Jr., for improvement in hydrants, and the reissue thereof, No. 6990, dated March 14, 1876; and, if so, how early was your attention first called to them or either of them?

A. I was familiar with the original patent during the time I was defending the suit of Mathews *et al. vs.* Boston Machine Company *et al.*, which was in 1874 to 1876—possibly earlier—but never saw the reissue.

19 Q. Did you ever receive from said T. R. Bailey, Jr., or from Mr. James Flower or the firm of Flower Brothers, as assignee or assignees of said Bailey, any threat of suit upon the said Bailey patents, original or reissue, by reason of the manufacture of hydrants by the Boston Machine Company? When I say "you" I mean the Boston Machine Company or you as its managing officer.

A. I remember of receiving a small printed circular. I haven't the date, but I think as far back as 1876. I did not preserve the circular, but I think it claimed that all frost-cases were an infringement of the Bailey patent; something to that effect. If that is a threat of suit, I did.

(Answer objected to, as a copy of the circular is the best evidence as to its contents.)

20 Q. Please look at the "Exhibit Flower Circular" and state whether that is the circular to which you have referred, as well as you remember.

6 Q. By what letters are the extra outside case and the inside main case respectively designated in the "Exhibit Coffin Reissue?"

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17 Q. Do you know Mr. James Flower, one of the plaintiffs in the present case, who is here present; and, if so, how long have you been acquainted with him?

A. I have known him since about 1872, when I met him in Detroit, and have met him once since in this city, Boston. I can't give the date — 1872, but about that. I think as far back as 1872.

617 18 Q. Have you examined the letters patent No. 75344, dated March 18, 1868, granted to T. R. Bailey, Jr., for improvement in hydrants, and the reissue thereof, No. 6990, dated March 14, 1876; and, if so, how early was your attention first called to them or either of them?

A. I was familiar with the original patent during the time I was defending the suit of Mathews *et al. vs.* Boston Machine Company *et al.*, which was in 1874 to 1876—possibly earlier—but never saw the reissue.

19 Q. Did you ever receive from said T. R. Bailey, Jr., or from Mr. James Flower or the firm of Flower Brothers, as assignee or assignees of said Bailey, any threat of suit upon the said Bailey patents, original or reissue, by reason of the manufacture of hydrants by the Boston Machine Company? When I say "you" I mean the Boston Machine Company or you as its managing officer.

A. I remember of receiving a small printed circular. I haven't the date, but I think as far back as 1876. I did not preserve the circular, but I think it claimed that all frost-cases were an infringement of the Bailey patent; something to that effect. If that is a threat of suit, I did.

(Answer objected to, as a copy of the circular is the best evidence as to its contents.)

20 Q. Please look at the "Exhibit Flower Circular" and state whether that is the circular to which yon have referred, as well as you remember.

A. I should say this is a copy of the circular that I received.

21 Q. Further than that circular, did you ever in all your intercourse with Mr. James Flower or the firm of James Flower & 618 Brothers receive any threat of suit or any complaint that the hydrants manufactured by the Boston Machine Company infringed upon any rights under the said Bailey reissue No. 6990?

(Objected to as immaterial.)

A. None whatever.

Adjourned.

JUNE 16, 1884.

22 Q. Did you have any correspondence with Messrs. James Flower & Brothers relating to the suit of Mathews *vs.* Boston Machine Company, and to the defenses available thereto, and to the Bailey patent? If so, will you produce the letters which you received from Messrs. James Flower & Brothers; and if you have copies of your letters to which the Flower Brothers' letters were in reply, or which were in reply to any of theirs, will you produce those also?

(Objected to as immaterial.)

A. On the reception of the Bailey circular I wrote them a letter referring to it in reply. Previous to this I had written one letter referring to the matter in answer to a question from them. I produce the correspondence, consisting of (1) letter of James Flower & Brothers, dated March 11, 1874, to Boston Machine Company; (2) copy of my reply as superintendent of Boston Machine Company, dated March 16, 1874; (3) copy of my reply on behalf of Boston Machine Company, dated June 19, 1876, to Messrs. James Flower & Brothers' circular; (4) letter of Messrs. James Flower & Brother to me, dated June 21, 1876, in reply to my last. I furnish a true copy of this correspondence.

(Copy of correspondence furnished by witness is put in 619 evidence by defendants and marked "Exhibit Flower-Carr Correspondence," and the letters are numbered 1, 2, 3, 4. Mr. Hill, of counsel for complainants, takes no objection to the annexing of copies instead of the originals, but objected to the whole correspondence as immaterial.)

CHARLES CARR.

HENRY B. RENWICK, a witness produced and sworn in behalf of defendants, testified as follows:

1 Q. What is your name, age, residence, and profession?

A. Henry B. Renwick; 66; city of New York; civil and mechanical engineer.

2 Q. How long have you followed your profession actively, and what experience have you had in the examination and comparison of machines, mechanisms, and mechanical contrivances for the purpose of determining questions of novelty and infringement in patent causes?

A. I have followed my profession actively for forty-five years,

commencing with an employment in the U. S. engineer corps, and in 1847 or 1848 was made the principal examiner of patents in the Patent Office, and remained there till my resignation, in 1852, I think, and since that time I have been examined many times each year as expert in suits in which patents were in question, having had to examine into the differences and identities in machinery, and to study up, both practically and in books, the state of the art in many branches of invention.

3 Q. What acquaintance have you had with the structure and offices of hydrants and their various operative parts?

620 A. I have been acquainted with hydrants since they were first used in New York in connection with the old water-works before the Croton, some fifty years ago. While in the Patent Office I had charge of all applications for patents relating to hydrants, and have had occasion since to examine many hydrants, and have been engaged as an expert in several suits in which hydrants were in question. I have been familiar with valves, stuffing-boxes, and joints for the last fifty years.

4 Q. Have you examined letters patent No. 75344, dated March 10, 1868, granted to T. R. Bailey, Jr., for improvement in hydrants, and have you also examined letters patent, reissue No. 6990, dated March 14, 1876, granted to Thomas R. Bailey, Jr., for improvement in hydrants, and do you understand the construction and mode of operation of the things described in each of said patents?

A. I have examined both the patent and the reissue carefully, and understand the construction and operation of the parts described therein.

5 Q. Please compare these two patents together, and state what you find to be described in the reissue 6990, and referred to in the several claims thereof, which is described or which is not described in the said original patent No. 75344.

A. The reissue describes a hydrant attached to a water-main B, the body of the hydrant being lettered A, and connected with the water-main by means of what the patent calls a ring-nut, M. This ring-nut not only serves to hold the hydrant in connection with the water-main, but also acts as a guide and supporter of packing for a peculiar main valve, D, very different from the main valve usually employed in hydrants. This main valve is a tube open at both ends, provided with a seat on the bottom of the water-main, and with

621 a screw-rod for lifting and lowering it. When this valve is on its seat water from the hydrant surrounds the valve and, owing to the outside of the tube being packed in the ring-nut, cannot rise into the body of the hydrant; but when the valve is lifted then the water enters underneath the tube of which it is composed into the interior of the tube, and passes through the interior of the valve-tube into the body or tube of the hydrant, and thence, if it is open, out through the ordinary coupling or hose connection. This valve differs from most, if not all, the hydrant-valves known to me in being a balanced valve—that is, as nearly balanced as valves usually are, for they are never perfectly balanced; and, in order to open and shut it, it is only necessary to work against the pressure

to the square inch on the end of the ring of metal of which the valve is composed, instead of the pressure of the whole area of opening of the valve, as is usual in the puppet main valve with which hydrants are ordinarily supplied. This hydrant is further supplied with a peculiar, and new to me, arrangement of waste-valve, this valve lying within the tube of the main valve when it is shut, being opened by the main valve striking an ear upon the waste-valve as the main valve descends, and the discharge orifice of the waste-valve lying within the seat of the main valve. This combination of main valve and waste-valve is entirely new to me, and the waste-valve, located and operated as I have described, could not be used in combination with the ordinary puppet main valve of hydrants. Moreover, by this combination the hydrant is drained when the main valve is shut to a level as low as the bottom of the water-main, and the seat of the main valve is on the bottom of the water-main, both these features being entirely new to me at the date
622 at which this patent was granted. The main valve can be opened by merely overcoming its friction, and shut by merely overcoming the pressure against the end surface of the tube of which it is composed. The rod by means of which the valve is worked is used in connection with the ordinary stuffing-box in the top of the hydrant, that box preventing the escape of water around the rod when the main valve is open. So far, the descriptions and drawings of the original patent and the reissue are the same. The original patent describes a tube, C, arranged round the hydrant proper and enclosing an air space between this tube C and the exterior of this hydrant proper. The upper part of this tube surrounds the upper part of the hydrant proper with a pretty close fit, and just above the top of the loose tube there is a bead on the hydrant proper which would prevent the rising of this tube C. The lower part of this tube C is socketed like an ordinary water-pipe, and rests upon the top of a sleeve which projects upwards from the main, and also on top of the ring-nut M. That tube C or loose casing, it is stated in the patent, protects the tube—that is, the hydrant proper, from dirt, etc., and that is all that is said about it. An inspection of the drawings will show that this loose tube or casing can have no practical motion in the direction of its length, with reference to the hydrant proper, A, but, on the contrary, that this tube is confined between the sleeve and ring-nut at one end of it and the bead on the hydrant at the other end of it. Now, turning to the reissue, I find the drawings altered. The socket of the casing C, which is called on the reissue a movable casing—words not found in the original patent—rests, as it did before, on top of the ring-nut, M, and the top of the sleeve projecting from the water main; but this tube has been shortened from
623 the proportions shown on the original patent, so that the top of the loose casing at its upper end no longer abuts under the bead on the top of hydrant, but lies below that bead about a quarter of an inch, more or less, which quarter of an inch, in a full-sized hydrant, would be some two or three inches—I speak from judgment by the eye—and consequently this tube, as shown in the

reissue, could move endwise with reference to the body of the hydrant. In accordance with this altered drawing, it is stated in the reissue that "sufficient space is left between the bead A and the upper terminus of the casing C to permit of sufficient up and down play of the said casing C, for the purpose which will hereafter more fully appear." Now, there is no such play shown in the drawing of the original patent, nor is there any hint or even suggestion in the description of the original patent that the casing C can have such up and down play. In the reissue the utility of this up and down movement of the casing C is stated to consist in permitting the casing to move up and down under the alternate freezing and thawing of the ground around the hydrant or plug, and in consequence thereof that this heaving of the ground will not derange the hydrant. It is known to me that if this casing were not free to slide up and down that the heaving of the hydrant itself by the frost would be liable to break or cause to leak the joint between the hydrant proper and the water-main, or in some cases to crack the water-main itself. The reissue, therefore, differs from the original both in the drawings and in the description, and in the fact that, owing to this alteration in the drawings and in the description, the tube C of the reissue is made capable of performing a duty which the tube C of the original patent will not perform and is not described as performing.

624 The first claim of the reissue refers to the tube or surrounding casing C when so constructed, as described in the reissue and shown in the drawing, as to have an independent up and down motion, when the surrounding earth is upheaved by freezing, without disturbing the hydrant proper, this claim being to a structure not shown in the original patent or described therein. The second and third claims of the reissue are substantially the same, although not exactly, as the first and second claims of the original patent, and are for combinations of parts which are described and shown in original patent.

6 Q. In comparing the combination referred to in claim 3 of the reissue with that of claim 2 of the original patent, what did you consider to be the construction of what is designated as the "casing C" in the reissue claim and the "case C" in the original claim?

A. The case C in the second claim of the original patent refers to the case which has no up and down motion with regard to the hydrant, as shown in the original patent, whereas, on the contrary, the casing C in the third claim of the reissue refers to the casing described in the reissue, which is movable up and down with reference to the body of the hydrant; and I should have said in my former answer that the claims were substantially the same in phraseology but different in reality, because the second claim of the original includes as one of its elements an immovable case, whereas, on the contrary, the third claim of the reissue includes as one of its elements the movable case of the reissue—that is, a case that is capable of being moved up and down with reference to the hydrant proper.

7 Q. The second claim of the reissue specifies as elements

625 of the combination therein referred to, the hydrant A, sup-

ply-pipe B, cylinder-valve, and waste-valve. What, if anything, does the casing *c* described and shown in this reissue have to do with the connection or operation of the combination so specified in this second claim?

A. It has nothing to do with it whatever. The elements named in the second claim are connected together by means of the ring-nut M, and would operate in the same manner if the frost-jacket or movable casing C were entirely removed. The frost-casing has nothing to do with the operation of the parts of the hydrant; its office is to protect the hydrant proper and supply-pipe B from the effects of frost.

8 Q. Have you examined the brown model, "Exhibit Bailey Original Model;" and, if so, will you compare its construction with that of the hydrant shown in the drawings of the reissue No. 6990, and state how you find them to differ, if at all, substantially?

A. I have examined this model, and find that the washers in it have been unnecessarily doubled, and in another place made much thicker in proportion than is necessary. The consequence of this is, first, to raise the top of the ring-nut M above the top of the sleeve which is attached to the main, whereas, as shown in the reissue drawings, the top of this nut is level with the top of the sleeve. I also find that the nut O has, by means of thick washers, been raised higher than it is shown in the drawings, and, as a consequence of these two changes, that the bead A is higher in proportion in the model than it is in the drawings, thus giving a greater space in the model than is shown in the drawings between the top of the sleeve and the ring-nut and the bead. I find further in the model that the lower end of the movable casing C, just above the socket,
626 has been chamfered out after it has been cast, so as to have a sufficiently large bore to slide over the top of the ring-nut M, whereas in the drawings the shoulder of the socket is so small that it cannot slide over the ring-nut, but must rest on top of it. By the use of these washers and this chamfering, and a consequent position of the ring-nut different from that shown in the reissue, room has been given for the up and down play of the outer casing C of the model; whereas, on the contrary, in the drawings of the reissue this play is given by shortening the tube C between its socket and its upper end.

(Answer objected to as assuming that changes have been made in the model as a matter of fact.)

9 Q. Have you examined letters patent No. 19206, dated January 26, 1858, granted to Washburn Race and Samuel R. C. Mathews for improvement in hydrants, a certified copy of which is "Exhibit Race & Mathews 1858 Patent," which I now show you, and do you understand the construction and operation of the structure shown and described therein?

A. I have examined the certified copy, and have been familiar with the patent for several years, and understand the construction and operation of the hydrant therein described.

10 Q. I show you a brass model which has been admitted into

this case as a representation of the construction of the hydrants used by this defendant which are complained of as infringements. Will you compare it with the hydrant described in the original patent to T. R. Bailey, Jr., No. 75344, and state how you find the construction of such model to agree with or differ from the construction of the combinations described in the said Bailey original patent and
627 referred to in the several claims thereof, having reference to the prior state of the art exhibited by the Race & Mathews 1858 patent?

(Objected to as assuming that the Race & Mathews 1858 patent shows a prior state of the art.)

A. The brass model, "Exhibit Defendants' Model," is a hydrant provided, as usual, with a main valve and a waste-valve and connected to a water-main. In this model the main valve is a puppet-valve, similar to those ordinarily used in hydrants, and opening downward. In opening it the pressure of the water to the square inch over its whole area must be overcome—that is, if the valve has eight square inches area of opening and the water pressure be fifty pounds, then the valve would have to be pressed down with a pressure of four hundred pounds in addition to the friction before it could be opened. This valve in the model is held shut by the pressure of the water, and its seat is about the level of the bottom of the hydrant proper or the top of the water-main. The valve is not a balanced valve. In the Bailey original patent the valve, as I have before stated, is a tube—an entirely different valve from a puppet-valve. It is a balanced valve, and requires both a seat and packing around its periphery. It is held shut by means of the screw, and not by means of the pressure of the water. It requires no more force to open it than is sufficient to overcome the friction, and its seat is on the bottom of the water-main. This valve is lowered to shut it, and the valve in the brass model is raised to shut it. In the brass model the waste-valve is a slide-valve, with its seat in the bore or tube of the hydrant proper, and is so connected with the main valve that it partakes of all the motions of the main valve. In Bailey's original patent the waste-valve is a clack-valve. Its
628 opening and seat are not in the hydrant proper, but in the bottom of the water-main. It shuts of itself, and not because it is moved by the main valve, as shown in the brass model, and it is opened by the tubular valve striking it in its descent, but it does not partake of all the motions of the tubular valve. Moreover, in Bailey the waste-valve lies within the bore of the tubular valve when it is shut, an arrangement which would be impossible with anything except a tubular valve, while in the brass model the waste-valve lies within the bore of the hydrant and entirely above the main valve. In Bailey the waste-valve is opened by the descent of the main valve, whereas in the model the descent of the main valve shuts the waste-valve. Both in the Bailey and in the brass model there is the ordinary stuffing-box for preventing the escape of water around the valve-rod, such as is shown in the Race & Mathews prior patent, while in Bailey and the brass model motion is communicated

to the rod by a nut, whereas in the prior Race & Mathews patent this motion is produced by an eccentric, the well-known equivalent of the nut. In the Race & Mathews patent of 1858, which I have before referred to, the puppet main valve and slide waste-valve are constructed, managed, and operated in the same way that they do in the brass model, and are entirely different in construction, arrangement, and mode of operation from the main and waste valves in the Bailey patent. In the original Bailey patent there is a tube enclosing the hydrant proper to protect it from dirt, which tube has no end play or motion with reference to the hydrant proper, said tube being confined between a projection from the water-main and a bead or flange on the hydrant proper. This same tube substantially is found in the Race & Mathews patent of 1858, con-
629 fined in the same way between a flange on the hydrant proper and a projection from the water-main; but in the brass model this tube or casting is free to slide up and down when heaved by the frost, and in consequence the brass model differs from both the Race & Mathews patent of 1858 and the Bailey original, in the fact that owing to its construction the heaving of the ground by alternate freezing and thawing will have no effect upon the hydrant proper and its joint, while in the hydrants of Race & Mathews' 1858 patent and the Bailey original patent the hydrant proper will be affected by the frost in the same manner as they would be if they had no outer tube. The first claim of the Bailey original patent, as I understand it, is to the combination of the hydrant proper—that is, the tube through which the water flows—with the water-main B when they are connected together as shown—that is, by means of the ring-nut M, the patent stating that the tube A is secured to the section B by a ring-nut, M. In addition to these parts there are the cylinder-valve, which I have already described, and the waste-water valve, which I have already described, and these valves must be connected and operated in combination substantially as specified; so that there are really five elements in the claim, namely: (1) the hydrant proper; (2) the water-main B; (3) the ring-nut M; (4) the cylinder-valve; and (5) the waste-valve, all connected and operated substantially as described. The parts A and B—that is, the hydrant proper and the water-main—are common to all hydrants, both before and after the date of the Race & Mathews patent of 1858, and a bushing to unite the parts A and B is also common; and the hydrant of the Race and Mathews patent, as well as others before it, had some kind of a main valve, some kind of a waste-valve
630 and some means for actuating them; therefore the distinguishing feature of the invention referred to in the first claim of the Bailey original patent is the balanced cylinder or tubular valve and the puppet-valve arranged in it and operated as described in the Bailey original patent. The brass model has no tubular valve, nor any equivalent for it, nor has it a clack waste-valve arranged within it, but, on the contrary, has such a main and waste valve as is shown in the Race & Mathews patent of 1858. The brass model does not show the invention referred to in this first claim of the patent to Bailey. If the contrary were shown to be the case, then

this first claim of Bailey would cover a hydrant made in accordance with the Race & Mathews patent of 1858, and the Race & Mathews patent would be an answer to the first claim of the original Bailey patent. The second claim of the Bailey original patent refers to a combination of five elements also, although by the phraseology the arrangement only is claimed. These elements are: (1) the hydrant proper; (2) the water-main B; (3) the valve D, which is the tubular valve that I have before referred to; (4) the case C, which is the jacket which protects the hydrant proper from dirt; and (5) the stuffing-box H, which prevents water from escaping around the valve-rod. All these elements of this claim, constructed, combined, and operating in the same way, are represented and described in the Race & Mathews patent of 1858, except the tubular valve D, so that the novelty of the claim consists in the employment of the old combination of the tubular valve D in place of the puppet valve of Race and Mathews. A sufficient reason for stating that this invention is not found in the brass model is that the brass model has not a tubular valve nor any valve constructed and
631 operated as a tubular valve does, but that the brass model has, on the contrary, a puppet-valve constructed and operated like that of the Race & Mathews patent of 1858. Under the improbable supposition that this claim may, by the doctrine of substitution, be held to cover the brass model, then it would, by force of the same reasoning, cover the Race & Mathews hydrant of 1858.

Adjourned.

JUNE 17, 1884.

The witness says:

I find that there is an error in my last answer as written down, when I call the waste-valve of the Bailey hydrant a puppet-valve instead of a clack-valve, as it should have been called. The counsel for the complainants refuses to permit me to have this error corrected in the body of the answer, and I am therefore obliged to make this correction at the end of it.

11 Q. Did you examine the hydrant marked "Exhibit Race & Mathews Hydrant," in the custody of William S. Beaman, Esq., special examiner, and in his presence, in the city of New York, on Thursday last?

A. I did examine that hydrant one day last week, and I think it was Thursday. I did not take it apart, but only examined the outside of it. Mr. Beaman was present at the time.

12 Q. Understanding that the interior construction of that "Exhibit Race & Mathews Hydrant" is substantially represented by the "Exhibit Board Model Race & Mathews New-Style Hydrant," now before you, will you make the same comparison between the combinations described in the original Bailey patent No.
632 75244 and referred to in the claims thereof and the "Exhibit Race & Mathews Hydrant" that you did between such combinations of the Bailey patent and the brass model "Exhibit Defendants' Model" in answer to interrogatory 10?

A. The "Exhibit Race & Mathews Hydrant," under the supposition of the question, is in all respects substantially the same as the brass model referred to by me in answer to interrogatory 10, and that answer will serve for the answer to this question by substituting "Exhibit Race & Mathews Hydrant" for brass model, in that tenth answer.

13 Q. Did you testify as an expert in the equity suit of Samuel R. C. Mathews *et al. vs.* Boston Machine Company *et al.*, formerly pending in the United States circuit court for the district of Massachusetts; and, if so, were you familiar with the structures put in evidence in that suit?

(Objected to as leading.)

A. I did testify as expert in that suit and was familiar with all the structures in evidence therein.

14 Q. In whose behalf were you called to testify in that suit?

A. The defendants, The Boston Machine Company and others.

15 Q. Please examine the "Exhibit Board Model Boston Machine Co. Hydrant" and make the same comparison between the hydrant structure which it represents and the combinations described in the Bailey original patent No. 75344 and referred to in the claims thereof, which you did between the brass model "Exhibit Defendants' Model" and those combinations of the Bailey patent in answer to int. 10.

(Objected to as immaterial.)

633 A. The Boston Machine Company's hydrant has, like the brass model, a hydrant tube proper, a stuffing-box for the valve-rod, a water-main and screw connection therewith, and a main puppet-valve and slide waste-valve connected together and operating in the same manner that they do in the brass model. Further, the hydrant of the Boston Machine Company has a frost-jacket or outer casing capable of endwise motion and not confined between flanges, so that it may move up and down under the influence of frost and thaw, which frost-jacket is substantially identical in all respects with that shown in the brass model. I have before said that the Bailey original patent has a tubular main valve and a clack waste-valve, and, having explained the construction and operation of those parts, do not deem it necessary to repeat a description of them. The Boston Machine Company's hydrant has not the cylinder or tubular valve of the Bailey hydrant, nor the clack waste-valve of the Bailey hydrant, nor any equivalents of them connected and operating in the same way, and therefore the Boston Machine Company's hydrant does not contain the invention referred to in the two claims of the original patent of Bailey.

16 Q. Please now compare the brass model which represents the defendants' hydrants, and which is marked "Exhibit Defendants' Model," with the combinations described in the Bailey reissue No. 6990 and referred to in the second and third claims thereof, and state how you find the structures so compared to agree or differ substantially.

A. The second claim of the reissue to Bailey is substantially the same as the first claim of the original patent to Bailey, and I have before stated my views as to what that first claim of the
634 original covers. Both the first claim of the original and the second claim of the reissue include the cylindrical tubular main valve and the clack waste-valve, connected and operated as described. Now there are no such valves and no equivalents for them in the brass model which represents the defendants' hydrants, and therefore that model does not contain the invention referred to in this claim. The brass model has not the valves which are the distinguishing features of the invention referred to in the second claim of the Bailey reissue. The third claim of the Bailey reissue is in phraseology substantially the same as the second claim of the Bailey original patent; but, owing to the change of the description and drawing in the reissue, the third claim is substantially different from the second claim of the original patent. In the claim of the reissue the words "casing C" mean a frost-jacket capable of endwise motion up and down around the hydrant proper; whereas in the second claim of the original Bailey patent the words "case C" mean an outer casing confined between flanges and incapable of endwise motion, and serving merely to protect the hydrant tube from dirt, etc. The brass model, which represents the defendants' hydrants, has all the elements of the third claim of the reissue except the valve *d*, which is the tubular or cylindrical main valve of the Bailey hydrant. In place of this valve the brass model has the ordinary balanced puppet-valve, held shut by the pressure of the water, which is not an equivalent of the tubular valve, and the brass model, therefore, in my opinion, does not contain the invention referred to in the third claim of the Bailey reissue.

17 Q. Are you familiar with letters patent No. 80143, dated July 21, 1868, granted to the Boston Machine Company, as the
635 assignee of Zebulon E. Coffin, for improvement in hydrant, and the reissue of those letters patent No. 5745, dated January 27, 1874, granted to the same party, certified copies of which I now show you, marked, respectively, "Exhibit Coffin Original Patent" [and] "Exhibit Coffin Reissue?"

(Objected to as immaterial and impertinent.)

A. I am familiar with the patent and reissue named in the question, and have been so for several years.

18 Q. Compare the structure described in the Bailey reissue No. 6990 and referred to in the first claim thereof with structure described and shown in each of these Coffin patents, and state whether or not, in your opinion, the grantees of those Coffin patents could have manufactured hydrants under and in accordance with the same without employing the invention described in the said Bailey reissue and referred to in the first claim thereof since the date of its grant, March 14, 1876.

(Same objection.)

A. The first claim of the Bailey reissue relates to the combination

with a hydrant proper of a surrounding casing, which is so constructed as to be capable of moving up and down independent of the hydrant proper and receive the entire movement imparted to it by the motion of the earth derived from freezing and thawing, without any derangement or disturbance of the hydrant proper, the combination being substantially such as shown in the patent. The original patent and reissue for the invention of Coffin, described and represented in the drawing, is precisely the same structure. As the drawings of the reissue are the largest I will refer to it. These drawings show a water-main with a hydrant proper attached
636 thereto by hook-bolts instead of the usual screw. The hydrant proper is provided with a stuffing-box, a puppet main valve opening downwards, supplied with a rod for moving it, and the hydrant has also two waste-valves of a peculiar construction, neither clack nor slide valves. The hydrant proper is surrounded by a frost-jacket made in two pieces, lettered B E in the drawing of the reissue. This jacket rests, when the hydrant is originally placed in position, on a sort of flange or sleeve, making part of the water-main, surrounds the hydrant proper and encloses that part of the hydrant which is above ground, and is free to move up and down without disturbing the hydrant under the influence of frost and thaw. This jacket, although made in two pieces, operates under the influence of frost precisely as if it were made of one piece, and is, in the words of the Bailey claim, "A detached and surrounding casing, said casing adapted to have an independent up and down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbance of the hydrant or plug proper, substantially as shown." The claim of the Bailey patent is not limited to a frost-jacket made in two pieces, provided the two operated in the same manner as a jacket made of one piece; moreover, the lower piece of the frost-jacket of the Coffin hydrant extends above the level of the ground, and would serve as a frost-jacket in the absence of the upper piece E. In my opinion the grantees of the Coffin patents could not, since the date of the Bailey reissue, have manufactured hydrants under and in accordance with the same without employing the invention described in the Bailey reissue and referred to in the first claim thereof. The Coffin patent and reissue described also a supplementary frost-jacket, lettered D in the drawings. But this sup-
637 plementary jacket operates independently of the other under moderate degrees of frost, and is an addition to and improvement upon the main frost-jacket.

19 Q. Will you state briefly whether, in your opinion, the grantees of the Coffin patents could, before the date of the Bailey reissue, have manufactured hydrants under and in accordance with such Coffin patents without employing the invention described in the Bailey original patent, No. 75344, and referred to in the claims thereof?

(Same objection.)

A. Yes; they could. The hydrant represented in the drawings and described in the original and reissued Coffin patents does not

contain the inventions referred to in the claims of the original Bailey patent.

20 Q. You have said that the hydrant represented by "Exhibit Board Model Boston Machine Company Hydrant" does not contain the invention described in the original Bailey patent and referred to in the claims thereof. How is it with the invention described in the Bailey reissue No. 6990 and referred to in the first claim thereof.

(Same objection.)

A. The Boston Machine Company's hydrant represented by the "Exhibit Board Model" does contain the invention referred to in the first claim of the Bailey reissue No. 6990.

21 Q. Did you examine the "Exhibit New York Hydrant-Box," in the custody of William S. Beaman, special examiner, last week, and are you familiar with its application and uses? If so, for how long and where?

638 A. I did examine the exhibit named in the question at Mr. Beaman's office last week and in his presence. I have been familiar with the application and use of such boxes or frost-jackets for a good many years in the city of New York, where they still are in extensive use. I probably have known of them for more than thirty years, or about thirty years. The first one that I can definitely remember was one nearly in front of my old house, in 9th street, in 1861. I passed that hydrant almost daily for several years after that time.

22 Q. How did the application and use of such hydrant-boxes compare with what is represented by "Exhibit Board Model New York Hydrant," understanding that the two vertical rails which connect the upper and lower parts of the half box are merely mechanical expedients to connect them together?

A. In the New York hydrant the staves which make up the box or frost-jacket are continuous from top to bottom and the box as a whole surrounds the hydrant proper, extending from the water-main below to above the flange on the upper part of the hydrant, the flange lying within the upper part of the box. This "Exhibit Board Model New York Hydrant" serves to illustrate correctly the application and use of such boxes or jackets upon the hydrant itself. In the hydrant itself the boxes can move up and down without disturbing the hydrant proper, under the action of thaw and frost, and I have seen them myself when the box had elevated itself so that the top was several inches above the flange on the hydrant proper.

(Answer objected to, as no particular specimen of the hydrant or location thereof is referred to by the witness.)

23 Q. Some testimony has been introduced on behalf of the plaintiffs in this case relating to the influence of the peculiarity of
639 shape of wooden hydrant boxes of larger diameter at the bottom than at the top upon the effect of the frozen ground to heave them. What is the result of your experience and observation as to the capability of such frusto-conical or frusto-pyramidal

boxes as the New York hydrant box referred to to be heaved by the ground frozen around their sides but not frozen as deep as their bottoms?

(Objected to as too general, and not relating to any particular hydrant designated.)

A. I cannot say anything from experience as to the movements of the box under the particular limitations of the question. I have seen boxes that must have been hoven by frost, many of them, but how deep the frost extended that hove them I don't know. My opinion is that the box would be hove by frost, not extending to the bottem of it, but probably not to so great an extent of upward motion as if the box were of the same cross-section from end to end. If the box did not heave at all, owing to its peculiar shape, it would still protect the hydrant proper from the heaving effects of frost, and be more useful than if it did lift, because there would then be no necessity of driving the box down periodically.

24 Q. Compare the structure represented by "Exhibit Board Model New York Hydrant" with the structure described in the Bailey reissue No. 6990, and referred to in the first claim thereof, and state how you find them to agree or differ substantially.

A. In the Bailey reissue there is no description of what material the casing is to be made of, and this is not material, because it would serve the same purpose whether made of wood or metal; nor does the description limit it to a tube of cylindrical shape nor to a
640 tube made in one piece; and the claim would, in my opinion, cover frost-jackets made of any suitable material of any proper shape and of any number of pieces that fancy or commerce might dictate so long as the jacket, when made, was combined with the hydrant proper and operated to protect it from upheaval substantially in the manner described in the patent. The New York frost-jacket is made of staves united into a whole by means of hoops, and operates as if it were made in one piece. It rests, in the words of the Bailey reissue, "loosely upon the main *b*," and its main function is, in the words of the reissue, "to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug." Further, in the words of the reissue, the board casing "extends upwards, enveloping the main portion of the water-pipe *a*, which is the hydrant proper—at least that portion which is subterranean," these words implying that the case of the reissue need not extend above the ground, but may be short, like the lower portion of the casing *b* of the Coffin reissue. Further, the board casing, in the words of the Bailey reissue, "extends upward and fits loosely about the plug or hydrant at the portion *a*," by which I understand that the patentee means that the casing shall fit loosely about that part of the hydrant which is above the ground. It is further said in the reissue that the casing *c* serves the purpose of protection to the water-pipe *a*, by which I suppose the reissue means that the jacket or casing encloses a space fitted with dead air around the hydrant proper, and the New York casing performs this duty. Further, in the words of the Bailey reissue

claim, the New York hydrant, as a whole, has, "in combination with a hydrant or fire-plug, a detached and surrounding casing,
641 said casing adapted to have an independent up and down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbances of the hydrant or plug proper." In my opinion the two structures referred to in the question are substantially the same, and combined with the hydrant proper in the same way, and operate in the same way to produce the same effect.

25 Q. What was the position of the tops of the New York wooden hydrant box frost-jackets, known to you, relatively to the surface of the ground, including the one you have mentioned on 9th street, New York city, nearly in front of your house, in 1861?

A. In all the hydrants that I remember having seen in New York the flange on the hydrant proper was at or above the level of the flag-stone, and I have never seen one of them where the box was not above the level of the flange and above the flag-stone.

26 Q. I show you the opinion of the Supreme Court of the United States in the case of Samuel R. C. Mathews *et al.*, appellants, *vs.* Boston Machine Company *et al.*, a certified copy of which is "Exhibit Supreme Court Decision" in this case, and I call your attention to the latter part of it, in which mention is made of "the old New York wooden case." Do you know, as a matter of fact, to what structure the Supreme Court thus refers in the language quoted?

(Objected to as leading, immaterial, incompetent, and improper.)

A. I do; it referred to a wooden case exactly like the one which I saw at Mr. Beaman's office, in New York, and to which I have already referred, marked "Exhibit New York Hydrant Box."

642 27 Q. Please read that part of the said "Exhibit Supreme Court Decision" which begins "But the patent of 1869 remains," and ending "We are of opinion, therefore, that this patent cannot be sustained," and state whether you testified as to the matters of fact embraced in that part of the opinion which is so referred to in the same case; and, if so, how the opinion you expressed compared with the findings of the Supreme Court, as stated in so much of this opinion.

(Same objection, the record being the best evidence.)

A. I did testify in that case of Mathews *et al. vs.* Boston Machine Company *et al.* on the matters of fact which are referred to in that part of the opinion of the Supreme Court referred to in the question, and I did testify, in substance, that the old New York wooden case or housing anticipated the claim of the Race & Mathews patent, and that the claim to the detached case in combination with the hydrant was invalid in view of the New York wooden case. The findings of the Supreme Court were to the same effect as my opinion in that suit.

28 Q. Please now compare the invention described in the Bailey reissue No. 6990, and referred to in the first claim thereof, with the invention described in the said Race & Mathews patent of 1869, No.

96959, and referred to in the claim thereof, and state how you find them to agree or differ substantially, and, in the same connection, state how the findings of fact expressed in the Supreme Court decision referred to affect the question of the novelty of the said Bailey invention, in view of the prior New York hydrant structure.

(Objected to as invading the province of the court.)

643 A. The invention described in the Race & Mathews patent of 1869, and referred to in the claim thereof, is precisely the same as the invention described in the Bailey reissue of 1876 and referred to in the first claim thereof. In both there is a hydrant proper or tube through which the water flows when the main valve is open. In both there is the ordinary water-main, and in both the hydrant proper above the ground is provided with a bead or flange. In both there is a loose and movable jacket surrounding the hydrant, the upper end of which encloses loosely that part of the hydrant which is above the ground, which jacket rests in both cases upon the water-main or upon a projection therefrom. In the Bailey reissue a socket on the lower end of the jacket rests upon a sleeve on the water-main, and in Race & Mathews' the lower end of the jacket rests in a socket formed on the water-main, the joint being telescopic in both cases. In both the frost jacket is so much shorter than the distance between the upper bead and the water-main that the jacket can rise and fall several inches without disturbing the hydrant proper or its joints. The things described in the Race & Mathews patent and in the Bailey reissue are the same so far as the first claim of the Bailey reissue is concerned, and the description of the construction of the mode of operation and of the advantages resulting from the use of the parts are substantially the same in the Bailey reissue and in the Race & Mathews patent.

The findings of the Supreme Court, in the opinion submitted to me for inspection, would, if applied to the combination covered by the first claim of the Bailey reissue, render the first claim of the Bailey reissue invalid, because that first claim of the Bailey reissue is to the same combination which is described in the Race & Mathews patent of 1869, and claimed in the claim thereof.

644 29 Q. Could the grantees of the Race & Mathews patent of 1869, No. 96959, have manufactured hydrants under and in accordance with that patent up to March 14, 1876, without employing the invention described in the original Bailey patent No. 75344 and referred to in the claims thereof?

A. Yes, they could.

(Adjourned.)

JUNE 18, 1884.

Cross-examination:

30 C. Q. When were you first informed of the pendency of this suit and by whom?

A. I was informed by Mr. Roberts; the time I cannot remember exactly, but I think two or three months ago.

31 C. Q. You state that you are a civil and mechanical engineer

and have been many years familiar with the construction of hydrants; you have not been engaged in the manufacture of hydrants at any time, have you?

A. No, I have not.

32 C. Q. Were you ever present when a hydrant was set in its place in the ground; if so, when and where, as near as you can remember?

A. I probably have been, but can't say positively, nor mention any specific time or place.

33 C. Q. You speak of these wooden cases which are set around many hydrants in the city of New York, and you state, if I understand you correctly, that they appear to have been lifted out of place—some of them—by the action of the frost; now, if you were not present and did not see such hydrants set in the ground,
645 respectively, how do you determine how the hydrant was set originally, and thus find any indication whatever as to whether any given case or wooden jacket was not set in the first place exactly as you saw it?

A. I cannot answer in regard to any specified hydrant. I have noticed, although I cannot give specific instances, that the new hydrants had been set with the top of the case at about the level of the flange on the hydrant proper, and I have seen many hydrants, which appear to be old hydrants, with the top of the case several inches above the flange. I cannot say positively that these specific upheaved cases had been set originally with their tops at about the level of the flange.

34 C. Q. And you cannot be positive, as a matter of fact, that any of such hydrants were upheaved?

A. No, I cannot testify positively as to that, although such is my belief.

35 C. Q. You have seen hundreds of these wooden boxes as they are set around hydrants in various parts of the city of New York?

A. I suppose I have; I have never counted them.

36 C. Q. You examined them closely, I suppose, a number of times?

A. I have.

37 C. Q. You discovered, did you not, in passing along the streets, that sometimes these wooden boxes were at the level of the flag-stone or sidewalk, while the flange of which you speak on the hydrant proper was at various points in different hydrants, from a half inch to six or eight inches above the top of the wooden box?

A. No, I have never seen one of those hydrants in which the flange was above the top of the box.

646 38 C. Q. But you have seen the top of the box at various points between the nozzle and the aforesaid flange, have you not?

A. I have seen the top of the box, as I said before, at various distances above the flange, the highest distance being four or five inches, I should say.

39 C. Q. In your deposition in case of Mathews *et al. vs.* Boston Machine Company *et al.* occurs the following language: "The case

is made of wood; is, in fact, a barrel." To what case were you then referring?

A. I was referring to the wooden frost-jacket of the New York hydrants, such as is represented by "Exhibit New York Hydrant-Box" in this case.

40 C. Q. Yes, but it was of this New York hydrant-box that you said: "This case is made of wood; is, in fact, a barrel," was it not?

A. I said that in my former answer when I said that the words quoted referred to the New York hydrant-box or frost-jacket.

41 C. Q. You didn't mean to say this of anything else than this New York hydrant-box, did you?

A. Not in the answer which you quote from.

42 C. Q. What peculiarity about this box led you to distinguish it and emphasize it as being in fact a barrel?

A. I neither distinguished it nor emphasized it as being in fact a barrel. I merely described it as being in fact a barrel; that is, made up of staves and hoops.

43 C. Q. Please examine "Exhibit Pendry Model," which is made up of staves and hoops. Now, if you had a case of that construction of the size of "Exhibit New York Hydrant-Box," you could correctly describe it as being in fact a barrel, could you not?

647 A. As far as I can ascertain, the exhibit handed me is not made up of staves and hoops. If it were made up of staves and hoops it could be called in fact a barrel.

44 C. Q. Please examine "Exhibit Pendry Model," and state wherein a case made like it of the size of the New York hydrant-box would substantially differ from such box?

A. It would not differ substantially, although the Pendry model is of much greater taper than any of the New York boxes which I have seen—nearly double, I should say, judging by the eye.

45 C. Q. But would this difference in the taper of the box, if used upon a hydrant under the box, be of such a character as not to be included within the claim of the Race & Mathews patent No. 96959?

(Objected to, as the question at issue in this case is not what would or would not be an infringement of said Race & Mathews' patent, and therefore is immaterial and irrelevant.)

A. No; it would not if the Pendry model when placed rested on the water-main and fitted loosely around the top of the hydrant, and was so constructed that it could have sufficient up and down play.

46 C. Q. Please examine the wooden box now shown you and state whether you ever saw in use a hydrant boxed or housed with a casing of the construction similar to that.

A. I remember an old hydrant that stood some forty-five years or more in Broadway, New York, somewhere near the corner of Bleeker or Houston street, which had a case that above the ground was like the case now shown me. I never saw it dug up, and don't know how it was constructed below the ground, or whether there

648 was any case at all below the ground, although I suppose the case did extend below the ground.

47 C. Q. Now, then, if you had a full-sized box like that placed in position around a hydrant, as the New York hydrant boxes are placed, would such a structure be covered by the claim in the aforesaid patent?

(Same objection as to interrogatory 45.)

A. That would depend upon the construction put by the court upon the Race & Mathews patent. If they construed the claim to limit it to a jacket which loosely surrounded the hydrant below the nozzle—and by loosely I mean with only sufficient looseness to slide up and down freely, and not much more—then the box shown me would not be within the claims. But if the claim were construed broadly to cover jackets capable of sliding around the hydrant proper, whether they extend above the top of it or not, such jackets serving to prevent heaving by frost of the hydrant proper, then this box would be within the claim of the Race & Mathews patent of 1869.

(Counsel for complainants has used, in putting cross-interrogatories 46 and 47, the model marked "Exhibit Box Old Bartholomew Hydrant.")

48 C. Q. I have removed the frost-case from the brass model, called defendants' model, and put in its place "Exhibit Pendry Model." Please examine these two models thus placed together, and state whether you do not find the Pendry model thus situated to be a representation substantially of the New York hydrant-box in place upon the hydrant?

A. It is not a representation of it because the case is of a different form, of a different taper, and surrounds the body of the hydrant instead of the flange therein. But this model, in the state in
649 which it is handed me, is substantially the same thing as the New York hydrant, so far as the combination of the hydrant and its frost-jacket is concerned.

49 C. Q. In the opinion of the Supreme Court of the United States to which you have been referred, the learned judge says:

"The claim of the patent of 1869, as it stands, covers any and every loose jacket having an end play to compensate for the heaving of the frost, and having the upper end passing around the hydrant. It covers the old New York wooden case or housing, which was in public use for many years before Race & Mathews gave their attention to the subject."

Please examine claim referred to and state how such construction, which seems to have been adapted, as you say from your testimony in that case, could be extracted from a patent with a drawing showing a straight cylindrical case, as this patent No. 96959 has?

A. I do not remember having said that the Supreme Court got their construction of the claim from my testimony, and I do not think that I am called upon, nor that it would be respectful in me to state my opinion as to the grounds upon which the Supreme Court arrived at their construction; I can give my own reasons for such construction of the claim, if wanted.

50 C. Q. Please give them.

A. The Race & Mathews patent of 1869 does not define any special material out of which the case should be made, nor does it make it essential that it should be made in one piece, or that the lower end of the case should rest in a socket, nor is the description limited to any special form of case; and therefore, in my
650 opinion, the claim is broad enough to cover the New York hydrant in combination with its surrounding wooden case, as that wooden case was combined and arranged with respect to the hydrant proper, as the Race & Mathews case is so as, in the words of the Race & Mathews claim, to compensate for the heaving by frost, and so, in substantially the words of the same claim, as to have its upper part pass outside of the main stock of hydrant so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant.

51 C. Q. But the drawing forming a part of the specification of this patent, No. 96959, shows a cylindrical case; how can you depart from this drawing in construeing the claim of the patent so as to make it embrace what Mr. Roberts has characterized as a frusto-conical or frusto-pyramidal box or case like the "Exhibit New York Hydrant-Box;" or, if you please, one constructed like the Pendry model?

A. Because the drawing is never controlling in a patent as to shape or size of parts; and if it were so, patents would be valueless, because mere changes of shape or form without substantial change in the mode of operation would enable an outsider to use the patentee's invention with impunity. Further, the patent in no way limits the structure as to the precise form of the parts, and if the drawing were controlling no frost-jacket would infringe the patent unless it had a shoulder on it such as is shown in the drawing, which shoulder is not at all referred to in the description; it is perfectly evident that an octagonal or hexagonal case would do the same duty as a cylindrical case; that the case would work in substantially the same way, whether bigger at one end than at the other or of the same cross-section throughout; the case shown
651 in the drawing is of larger cross-section at the upper end than at the lower end, and the case shown in the drawing is in fact not cylindrical, but composed of two cylinders of different diameters, thereby approaching to a cone.

52 C. Q. How about the length of the case as controlled by the drawing?

A. The absolute length of the case is not controlled by the drawing at all; but it is clear from the patent that whatever be its length, longer or shorter, it must be so short in comparison to the distance between the bead at the top and sleeve at the bottom that the case or frost-jacket shall have sufficient end-play, whether the jacket be three feet long or ten feet long.

53 C. Q. In your former deposition in Mathews *et al. vs.* Boston Machine Company *et al.*, you stated as follows—that is to say: "I do understand that the invention referred to in the claim is a case around the hydrant, not attached to the elbow or bend, extending

above the ground and outside the main body of the hydrant and not impeded in its upward motion by any attachment either to the elbow or the hydrant or by any flange or ears attached to the hydrant above the case so as to prevent its motion when hove by frost, and I understand that this invention may be found even when the lower end of the case is not supported in the precise manner described and shown in the drawing." What about that patent was there that enabled you to depart so widely in construing the claim from the case shown in the drawing?

A. I did not depart widely from the case shown in the drawing; I did include cases combined in the same way with the hydrant, and having substantially the same mode of operation, and the patent covers such cases, in my opinion.

652 54 C. Q. For the reason stated at length by you in your former deposition, was it not?

A. I don't understand the question.

55 C. Q. Question repeated.

A. I don't understand it.

56 C. Q. Supposing you set a tub or barrel of the description in form, shape, size, and construction of the "Exhibit New York Hydrant-Box" in the ground, how, in your opinion, would the frost, acting through the surrounding earth, affect that box, supposing it to freeze hard around it to the depth of two feet from the surface of the ground and the top of the box, supposing the top of the box to be even with the surface of the ground?

A. Whether it would lift it or not, or how high it would lift it, would depend upon the character of the ground and the way it was rammed round the hydrant, upon the amount of water contained in the ground, and upon the suddenness and intensity of the frost. If the box were buried in dry sand I don't believe it would be hove at all; under other circumstances it might or might not be hove by frost.

57 C. Q. Please examine the specification of the original letters patent No. 75344 and state whether you can find therein any mention or intimation of the bead of which you have spoken, other than that shown in and by the drawing.

A. The bead shown in the drawing is not referred to by letter or name in the specification of the original patent to Bailey.

58 C. Q. Then, if the drawing has no controlling effect in the construction of letters patent, why do you attach so much importance to the bead, which is only shown in the drawing in letters patent No. 75344?

653 A. I have never said that the drawings have no controlling effect upon letters patent. The drawings show, or ought to show, the preferred form of the patentee's invention. I attach importance to the bead shown in the drawing, because, in the absence of any description or hint in the patent that the case can move endwise, it shows conclusively that the patentee, in describing his invention, had no idea of giving to the public a description of a case or jacket which could be moved endwise along the hydrant and hove by the frost without disturbing the hydrant proper.

59 C. Q. Upon the longitudinal central section of hydrant shown in the drawing in said letters patent No. 75344 the indication of a bead or flange upon the upper portion of the hydrant tube is the one found at or near the top of the case C. There is no considerable space shown between this bead and the top of the case. Hence you say, do you not, that the casing described in the letters patent can have no end play?

A. Yes—when the bottom of the casing is constructed and supported as shown in the drawing.

60 C. Q. Apply the same reasoning to this drawing, and, as there is no space shown between the inside diameter of the said casing and the outer diameter of the tube A at or near the ground line of the hydrant proper, it would be equally true, would it not, that the said casing was intended to have no lateral movement on the said tube?

A. It would not be, because the patent says that C is a loose casing around the hydrant tube. If the patent had said that the bead above the casing might be turned off, even though it was represented in the drawings, I should not then have said that it was the intention of the patentee to give no end play to the frost-jacket.

654 61 C. Q. Supposing there had been no bead there, there would have been no necessity of getting rid of it as you suggest in the description, would there?

A. There would not.

62 C. Q. As shown by this drawing, this casing C is confined to the upright part of the hydrant closely, both at the top and the bottom, is it not?

A. These ends are confined between the bead and the sleeve on the main, without any practical play.

63 C. Q. Then there is a variance between the description and the drawing, is there not?

A. None that I can see.

64 C. Q. But the specification calls for a loose casing, and you have repeatedly, I think, in your direct examination, spoken of the casing shown in those letters patent as being an immovable casing. What did you intend to say, if the casing could be considered a loose casing, by thus describing it as an immovable casing?

A. I don't know that I have ever called it an immovable casing. It is immovable endwise when the parts are put together, as shown and described in the patent with respect to the hydrant proper. The patent says that C is a loose casing around the hydrant tube—that is, one that is not made in the piece with or screwed fast to the hydrant tube, but surrounds it with some play—that is, that the inside diameter of the tube is somewhat larger than the outside diameter of the hydrant. If I did use the word immovable I meant by it that the casing was practically immovable endwise with reference to the hydrant when all the parts are in place, and such is the construction of the contrivance shown in the patent.

65 C. Q. If it is a loose casing, then it is not an immovable casing, is it?

655 A. It is immovable endwise with respect to the hydrant when the parts are in place, although it is loose around the body of the hydrant horizontally.

66 C. Q. What is there in the words "C is a loose casing around the hydrant tube" which, to your mind, indicates that this case is immovable endwise?

A. Taking the patent as a whole, drawings and specification, which is the only way to look at a patent, and taking into consideration the statement that the case is to protect the hydrant from dirt, etc., and also taking into consideration the fact that there is not one word in the patent as to the fact of this case being affected by the heaving of the ground, it is clear to me that the word loose is not synonymous with endwise motion; if it were so considered synonymous the drawings would contradict it.

67 C. Q. In construing patents as an expert do you take into account the state of the art as having anything to do with the subject-matter of the claims?

A. Never to the extent of doing violence to the language of the claim; sometimes to the extent of explaining obscure phraseology.

68 C. Q. The proof in this case in New York as to "Exhibit New York Hydrant-Box" was that boxes like that for use in setting hydrants were manufactured by the carpenter for the department of public works and delivered by him at the pipe-yard and afterwards taken by employés of the city and set in the ground around the hydrants. When, in your opinion, does this wooden case or barrel become a part of the hydrant?

A. It never becomes a part of the hydrant proper; it is put in combination with the hydrant proper, as stated in the claim of the Race & Mathews patent and of the Bailey reissue, when the parts are fitted together.

656 69 C. Q. Suppose the superintendent of the water-works in the city were to write to R. D. Wood & Co. as follows: "Send one sample hydrant with frost-case according to Race & Mathews' patent of Nov. 16, 1869, No. 96959," and they should send a full-sized hydrant constructed like the "Exhibit Defendants' Model," with the sliding case left off from it and a wooden case substituted in its stead of construction like "Exhibit New York Hydrant-Box." If your construction of the said patent is correct, then R. D. Wood & Co. by so doing would comply with the terms of the order, would they not?

(Objected to as immaterial and irrelevant, and as confounding the distinction between the legal construction of the language of a patent and commercial usage as expressed in an order.)

A. The construction of the claim of the patent has nothing to do with the order; people order contrivances without caring whether they are patented or not, to what extent they are protected by claims, or what part of the machine is protected by claims; such an order calls for a hydrant made like the drawings and description in all respects, without any reference to the scope of the claim or whether there is any claim at all. R. D. Wood & Company would not com-

ply with the terms of the order by so doing. I may explain. The courts have held that all, or nearly all, two-thread sewing-machines, including the Grover & Baker, were infringements of the Howe patent; if I had written to Elias Howe for a Howe sewing-machine and he had sent me a Grover & Baker sewing-machine, because it infringed his patent, I should not have thought that he filled my order.

80 C. Q. But the New York wooden case, which you say
657 has been used for nearly thirty years, is, in your opinion, a loose casing, and when set in the ground as such, in combination with a hydrant, is a part of the hydrant, just as much as the sliding case upon the "Race & Mathews Exhibit," is it not?

A. Yes, that is so, although I should not call either case a part of the hydrant any more than I should call a house a part of the bedstead contained within it; the case protects the hydrant and is combined with it.

71 C. Q. So, too, the house would protect the bedstead, would it not?

A. Yes.

72 C. Q. The bedstead couldn't be upheaved by frost in the house, could it?

A. Yes, it could, if the house was upheaved by frost.

73 C. Q. You have spoken concerning the "Exhibit Bailey Original Model" and have indicated certain changes as having been made thereon; what intimation had you that any changes had ever been made in such model from the time it was first put together?

A. The changes that I spoke of were with reference to the drawing of the original Bailey patent, and such changes are apparent. I know nothing of how the model was originally made and put together by means of thick and duplicated washers.

74 C. Q. How about any changes since it was made?

A. I have already said that I know nothing of what was the original construction of the model and, of course, do not know whether that model has been changed or not.

75 C. Q. Please look at "Exhibit Bailey Original Model," taking the model as it now is. Is there any doubt in your mind as to whether the loose casing around the tube or upright part of the hydrant is loose and has end play?

658 A. As the model is now put together the casing or frost-jacket is loose and, in addition to its looseness, has end play.

76 C. Q. Will you please tell us what a hydrant is?

A. A tube leading from a main below the ground with its upper part above the ground and provided with some kind of a nozzle, or with its upper end in a properly protected excavation below the ground, this tube being supplied with a valve of some kind or other, by the operation of which water can be permitted to flow through the hydrant or can be shut off from the hydrant. I have seen them made of metal and made of wood.

77 C. Q. What, then, are the essential parts of a hydrant?

A. They are those indicated in my last answer.

78 C. Q. Simply a tube and a valve.

A. A tube, a valve, means for moving the valve, and a nozzle.

79 C. Q. What was the construction of the earliest hydrant which you remember to have seen?

(Objected to as immaterial and as not proper subject-matter of cross-examination, no reference thereto being made in the direct.)

A. I can't say with any certainty. I have seen so many it is impossible for me to say which was the first one.

80 C. Q. Is a hydrant a machine or an article of manufacture?

(Same objection.)

A. Names are nothing. It may be called either. I should call it a structure.

81 C. Q. Please explain the action of the frost fully upon the hydrant, and show how it lifts the same so as to break it or disturb it and its connections.

659 A. I can't do it. I was never under ground to examine into it. All I know is that articles buried in the ground are hove by frost, and my opinion is that they are so hove by the expansion of the water contained in the ground when said water is frozen.

82 C. Q. In your former testimony, in the case of Mathers *et al. vs.* Boston Machine Company *et al.*, you stated as follows: "The patent to Race & Mathews November, 1869, also describes a hydrant with a case. This case, as I understand it, is an improvement, and in my opinion a great one, upon that described in the reissue." You were then referring to a case constructed substantially like the one represented by the sliding case belonging to "Exhibit Defendants' Model," were you not?

A. I was referring, in the first part of the quotation, to the frost-jacket capable of endwise motion, and described in the patent of Race & Mathews of November, 1869; and in the latter part of the quotation to the jacket described in the reissue of the Race & Mathews patent of 1872, which described a jacket confined at both ends like that in the original Bailey patent and having no end play.

83 C. Q. This case of the patent of 1869 before referred to, as you say, is substantially the same thing as the "Exhibit New York Hydrant-Box," known to you for upwards of thirty years. How could you have thus characterized it as a great improvement over that described in the prior patent?

A. I said that the patent of 1869 described a case which is a great improvement upon the case described in the reissue of a prior patent to Race & Mathews. I am still of that opinion. I did not say it was a new improvement or invented by Race & Mathews.

660 On the contrary, my subsequent testimony in the same case shows conclusively that I did not think that Race & Mathews invented the improvement.

84 C. Q. You do not wish to qualify your former testimony in that regard, do you?

A. I have no desire to do so to any person who reads the whole testimony fairly.

85 C. Q. What difference does it make as to the action of this outside case for any purpose whether a tubular or cylinder valve, a puppet-valve, or any other valve is used in the construction of the hydrant around which such case is set?

A. None; and the first claim of the Bailey reissue does not include as elements of it any valve of any kind whatever.

86 C. Q. If it be conceded, for the sake of illustration, that "Exhibit Bailey Original Model" illustrates a hydrant with a loose frost-jacket having end play, and that the same was novel at the time the hydrant was made, and that the cylinder-valve, in combination with the waste-water valve therein shown, was also novel at the same time, then said model contains or represents two distinct inventions, does it not?

A. Yes; I should say at least four.

87 C. Q. What are those four?

A. (1) The endwise movable top jacket in combination with any kind of a hydrant; (2) the cylinder-valve; (3) the clack waste-valve; (4) the combination of the clack waste-valve with the cylinder-valve, inside of which it is located.

88 C. Q. I think you stated that you had been principal examiner in the Patent Office?

A. Yes.

89 C. Q. What office does the model filed or deposited with an application for a patent perform?

661 (Objected to as incompetent and inadmissible, the same being a question of law upon the construction of the statute.)

(Question withdrawn.)

90 C. Q. How long were you connected with the Patent Office in that capacity?

A. I can't remember exactly; between four and five years, as near as I can remember.

91 C. Q. The opinion in the case of Mathews *et al. vs.* Boston Machine Company *et al.*, in referring to the patent of 1869, reads as follows: "Had this patent been confined to a hydrant-jacket closed at the bottom and resting on a flange of the main elbow perhaps it might have been sustainable. It is only said that the lower end preferably shuts into a flange of the elbow." Do you remember giving any testimony in that case as an expert relative to the points thus suggested in said opinion?

A. I remember quoting from the patent the words about the preferable construction. I don't remember whether I did or did not say anything further on that point. The testimony was given in 1876, and I have not examined it since, except such quotations as have been shown to me to-day.

92 C. Q. Do you remember whether the word "preferably," as stated in the patent referred to, had anything to do in your arriving at the conclusion that the New York hydrant-box was covered by the claim of that patent?

A. I don't remember the fact, but I have no doubt it did have something to do with my conclusion as to the New York hydrant-

box; that and the fact that the claim of Race & Mathews in 1869 refers to the mode of structure of the upper end of the box,
662 and has no words at all relating to the structure or manner of seating the lower end of the box.

93 C. Q. Please examine the drawing of the Bailey reissue No. 6990, and compare the same with the drawings of the original patent, and carefully explain, if you please, how you arrive at the conclusion that the case C has been shortened.

A. I have already stated in my direct examination my reasons for asserting that the case in the reissue had been shortened with reference to the distance between the main and the bead on the hydrant. I will do it again at your request. In both the original and the reissue there is shown the same sleeve cast in one piece with the main, and in both there is shown the ring-nut M in the same position with respect to the sleeve—that is, with the upper surface of the ring-nut level with the upper surface of the sleeve. In both the frost-jacket is shown as provided at the bottom with a socket, which is terminated by a shoulder. In both this shoulder rests upon the upper surface of the ring-nut and the sleeve. So far the drawings are the same, but in the original patent the frost-jacket is so long that it touches the bead which is upon the hydrant above the ground—which is referred to by the letter A in the reissue—so that the jacket can have no endwise motion; while, on the contrary, in the reissue the jacket is made so short that it can have considerable endwise motion before it touched or is obstructed in its motion by this bead A.

94 C. Q. The reissue drawing as a whole is shorter than the drawing of the original, is it not?

A. It is; but that is a mere question of scale. I have not referred to the absolute shortness or length of any of the parts, but to
663 the relative length of the frost-jacket to the distance between the bead and the sleeve.

95 C. Q. The distance between the bead and the sleeve shown in the reissue constitutes, then, practically the substantial difference between the two drawings, does it not?

A. No; it does not. That distance, when considered with relation to the length of the frost-jacket shown in the two drawings, constitutes the substantial difference between the two.

96 C. Q. Please examine the reissue drawing again carefully and compare the same with the drawing of the original patent, and see if you do not discover a change in the relative position of the parts, namely, the case C and the tube A, at their connection or point of contact at the ground base of the hydrant.

A. Yes; owing to the shortening of the frost-jacket in the reissue the top of it is some considerable distance below the bead A, and consequently lower down on the hydrant than in the original patent; I noticed this before.

97 C. Q. Is there not also more space shown between the case C and the tube A at its point of contact on either side?

A. Yes; the bore of the frost-jacket is larger in proportion to the exterior diameter of that portion of the hydrant which is above

ground in the reissue than in the original drawing; I noticed this when I first saw and compared the drawings, but have made no reference to it, as it is a matter of not the slightest importance.

Adjourned.

664 JUNE 19, 1864.

Direct examination resumed:

98 Q. In your answer to cross-int. 92 you stated in substance that you have no doubt that the statement in the Race & Mathews patent of 1869 that the lower end of the case preferably shuts into a flange of the main elbow connection had something to do with your conclusion as to the New York hydrant-box, and, excepting the claim of that patent, is there any corresponding alternative construction specified in the Bailey reissue No. 6990 which has influenced your conclusions as to the New York hydrant-box anticipating the first claim of that reissue? In this connection you may also compare the descriptive language of the claim of the Race & Mathews patent of 1869 and the first claim of the Bailey reissue No. 6990, and point out their likeness or differences.

A. In the Bailey reissue an alternative way of supporting the bottom of the frost-jacket or casing is suggested. In the drawings the connection is by means of a socket on the bottom of the casing resting upon a sleeve or branch projecting upwards from the main, but in the reissue there is this phraseology: "It will be observed that the casing C loosely rests upon the main B or upon a branch projecting upwards from the same." Now, these words loosely resting upon the main describe the way in which the New York box rests upon the main, and certainly so enlarge the claim that it would not be necessary that the case should have the peculiar socket connection shown in the drawings in order to infringe the claim. The

665 claims of the Race & Mathews patent of 1869 and of the Bailey reissue are substantially identical. In both the casing is called a "detached" casing. In one it is said to have an "end play or vertical motion;" in the other it is said to have an "up and down motion;" in one claim "sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing," and in the other "to compensate for the heaving by frost." The Race & Mathews claim has in it the words, "So that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant." This limitation is not found in the claim of the Bailey reissue, but both the description and the drawings of the reissue show identically the same construction of the upper part of the casing and hydrant as is shown in the Race & Mathews patent, and with the Bailey case the change in its position could be ascertained and the case or frost-jacket driven down without disturbing the hydrant. In my opinion, the two claims are of the same scope and to the same combination.

Cross-examination resumed:

99 C. Q. Please examine the "Exhibit Pendry Model," as it is now placed upon the "Exhibit Defendants' Model," in view of the frost-jacket, which belongs to the latter, and which I have removed, and state whether, in your opinion, according to the patent Bailey reissue and the Race & Mathews patent of 1869, said casing rests upon the main, as you have in answer to last preceding interrogatory explained.

A. It does.

100 C. Q. That is to say, in either of the aforesaid patents, in your opinion, there is nothing to indicate at what distance from the tube or upright part of the hydrant the bottom of the casing rests,
666 provided it rests upon the main. In other words, to make my meaning more clear, according to your interpretation of either of the said patents, any casing, fitting around the upper portion of the hydrant substantially as shown in the Pendry model in its present connection, resting loosely upon the main at any point, either close to the hydrant tube or near the socket on the main, would be an infringement, in your opinion, of either the Race & Mathews claims aforesaid or the first claim of the Bailey reissue aforesaid?

A. It would be an infringement of either of them, in my opinion.

101 C. Q. Now, please look at the specification forming part of the Bailey reissue at the words, "Said casing extends upward and fits loosely about the plug or hydrant at the portion A." Why, by the same reasoning, may you not correspondingly enlarge the top of the casing so as to bring it out from the hydrant tube to enable it to receive a flange thereon, as represented in "Exhibit Board Model New York Hydrant," or so as to make the case a true cylinder having the same cross-section throughout?

A. The case is already a true cylinder except the socket, and it would be within the claim if made without the socket. There is no alternative construction of the top of the case and bottom of that part of the hydrant above ground described in the reissue. But if the case fitted loosely around a flange, as in the New York hydrant, it would be substantially the same as if it fitted around the hydrant itself, because the flange is a mere thickening of the body of the hydrant at one place, and a hydrant with the top of the casing thus fitted loosely around the flange would be an infringement of the Bailey reissue.

HENRY B. RENWICK.

667 "EXHIBIT FLOWER-CARR CORRESPONDENCE."

"No. 1."

(Copy.)

DETROIT, MICH., *March* 11, 1874.

Boston Machine Company, Boston, Mass.

GENTLEMEN: On the 19th inst. we telegraphed you if Messrs. Woods & Co. has entered suit against you for manufacturing "frost-

cases for hydrants," to which you responded promptly, and for same please accept our thanks. Our reason for so doing was this: The agent for "Woods & Co." was here some days ago, and was blowing considerable about stopping you from the manufacture, saying that they had put an injunction on you, and that you could not make any more, etc. This, of course, is injurious to your business if people would take it for granted that it was so. We do not know what they claim, but we know that to our knowledge wooden "frost cases" *was* made over 30 years ago. Any information that we can give you that will be of any help to you [we] will be glad to do so on application.

Very truly yours, JAMES FLOWER & BROS.,
McKAY.

"No. 2."

(Copy.)

BOSTON, *March 16th*, 1874.

Messrs. James Flower & Brothers.

GENTLEMEN: Your letter of the 11th was duly received. R. D. Wood & Co. filed a bill against us about a year ago, to which
668 we made answer; have heard nothing from them since. We have hunted up most everything for frost-cases, but you may know of some we do not. We would be obliged to you for information of the one you mention of 30 years old. Please state where located and give sketch of case and show its relation to hydrant body, which will oblige—

Yours, truly, BOSTON MACHINE CO.,
By CHARLES CARR, *Sup't.*

"No. 3."

(Copy.)

BOSTON, *June 19th*, 1876.

James Flower & Bros.

GENTLEMEN: Your circular under date of March 31st was duly received. As you are doubtless aware, R. D. Wood & Co. and ourselves have been in litigation about hydrants nearly two years, and that one of the principal points at issue is the slip case. If in the T. R. Bailey patent the case was made to rise, we do not understand how Mathews could get his patent of 1869 through the office. Bailey's patent antedates Mathews', but he would have to prove priority of invention, and would have to go as far back as June or July of 1866 to sustain it.

Very likely they will all be invalidated by the result of this suit could Bailey go as far back with his invention as June or July, 1866. If so, an understanding between us, we think, would be mutually advantageous.

Yours truly, BOSTON MACHINE CO.,
By CHARLES CARR.

669 "No. 4."

(Copy.)

DETROIT, MICH., *June 21st*, 1876.

Charles Carr, Esq., Boston Machine Co., Boston, Mass.

DEAR SIR: Yours of the 19th inst. is at hand, and in reply, we shall have to stop until after the thing is decided by the United States court, before giving you a decided answer. Any information bearing on the subject would be gladly received by us.

Yours truly,

JAMES FLOWER & BROS.,
Per WM. PENDRY, *M. E.*

670 & 671 *Plaintiffs' Evidence in Reply.*

The Circuit Court of the United States for the Eastern District of Michigan.

JAMES FLOWER, GEORGE FLOWER, and THOMAS FLOWER
vs.
THE CITY OF DETROIT *et al.*

Testimony for the plaintiffs in reply, taken before Walter S. Harsha, special examiner, at Detroit, on Monday, the 7th day of July, in the year 1884.

Present: Mr. E. J. Hill, of counsel for plaintiffs; Mr. Geo. L. Roberts, of counsel for defendants.

JAMES FLOWER, a witness recalled by the plaintiffs, testified as follows:

1 Q. You were present at the office of Mr. Beaman, No. 140 Nassau street, N. Y., on June 6th last, and there saw produced "Exhibit New York Hydrant-Box," and heard the testimony of Albert Chesebro, were you not? Please examine the structure now before you and state whether that is not the same exhibit.

A. I was there and heard the testimony, and that is the identical box.

2 Q. Since then you have caused to be made a small model of the said box, have you not? If so, please produce it.

672 (Objected to as inadmissible and incompetent at this stage of the suit, the original exhibit being the best evidence of the structure which it represents.)

A. This model is made to a scale from the original box.

(Witness produces a model which plaintiffs put in evidence, and marked "Exhibit Model New York Hydrant-Box.")

3 Q. While in New York, state whether or not you examined the hydrants in use in that city having boxes set around them; and, if yea, to what extent.

A. Well, I examined a great many of them—probably a hundred or more.

4 Q. In what localities particularly?

A. On Broadway; on a great many other streets from Murray to Grand street; also a great many side street, crossing Broadway east and west.

5 Q. Please describe how these cases were set around these hydrants.

A. Some of them you could not see any cases at all around them, others you could see the cases; they were set in all sorts of styles. Some with cases way above the ground and the flange above the cases, others were buried nearly down to the nozzle. There were some which, by the appearance of the wood, had been in probably a year or two; you could see them very plain; they were the best set ones I could see—in the best condition. The ones nearly down to the nozzle I couldn't tell whether they had wood cases or not—they were buried. There were others that appeared to be filled up with cement around the body of the hydrant. Of others I found the cases rotten; they looked good enough at top, but I could poke my cane right down into the staves; they were rotten.

673 (Question and answer objected to as irrelevant, because applying only to the present time, and also as inadmissible, no foundation therefor having been laid in the examination of defendants' witnesses.)

6 Q. How do these cases that you saw and have just described compare with "Exhibit New York Hydrant-Box" in their structure?

A. The tops of the cases appeared to be just the same.

7 Q. What was there about the said boxes or the hydrants around which they set by which you could tell whether the said cases or any of them had been upheaved by the frost or driven back?

(Same objection as to interrogatory 5 and answer.)

A. I couldn't see that they had ever been driven back. I couldn't find any that I thought had been raised by the frost. The best preserved ones looked as they would coming from the shop. The saw marks were on them—on the end of the wood case. They did not appear to have ever been driven back. Had they been driven back, the tops of the staves would have been battered up.

8 Q. If such boxes were set uniformly around the flange at the top, even with the top of the flange or at a uniform height above the said flange, then you would have some criterion from which to judge as to whether the said cases had been upheaved or not, would you not?

(Objected to as leading.)

A. The best ones were set even with the top of the flange. Others were not set even with the top of the flange. There were some where the flanges were set away above the wood case—six or seven inches above. There was one where the case was above the
674 paving stones and the flange away above that again. You could take hold of the hydrant and sway it over back and forth.

(Same objection to this answer as to the 5th answer.)

9 Q. But from the way and manner in which these cases were set, at different heights around the flange of the hydrant, was there anything to enable you to determine whether any of such hydrants had been upheaved by the frost or not; if so, what was it?

(Same objection as to interrogatory 5.)

A. There was nothing to show, that I could see, whether it had been upheaved or not. There was no sign, that I could see, whether they had been driven back or not; nothing that I could see.

10 Q. Later in the month of June last you were present at the office of Mr. Stetson, No. 140 Tremont street, in the city of Boston, and heard the testimony of Henry B. Renwick, were you not?

A. I was and did.

11 Q. You saw the "Exhibit Pendry Model" placed upon "Exhibit Defendants' Model" in lieu of the case thereon, did you not?

A. I did.

12 Q. Please put "Exhibit Model New York Hydrant-Box" in the place of the case upon "Exhibit Defendants' Model," and state how that compares with the boxes which you saw set in the city of New York around hydrants.

(Objected to as irrelevant and inadmissible and not calling for evidence in reply to that introduced by defendants.)

A. "Exhibit Defendants' Model" is differently constructed from the ones they use in New York, called the Ayres hydrant.
675 That has a flange that the wood case fits around at the top. This merely fits on this round part here without a flange. That is the difference between the hydrants. It shows the same on this as it does on the New York one, except that there is no flange.

13 Q. At my request, you have made other boxes which will fit "Exhibit Defendants' Model," have you not? If so, please produce them.

(Objection as to the last interrogatory.)

A. I produce them.

(Offered in evidence by Mr. Hill and marked "Exhibit Flower Box No. 1" and "Exhibit Flower Box No. 2.")

14 Q. You were at Lockport on or about the twelfth day of April last and saw in Mr. Trevor's shop on Market street "Exhibit Bailey Hydrant?" If yea, please describe its condition when you first saw it.

A. I was in Lockport and saw the hydrant. It was taken to pieces, partly in the shop and partly on the walk outside. They took the case off while I was there. It was in pieces—a portion in the shop and a portion on the sidewalk.

15 Q. State what you did while there at Lockport relative to the said hydrant?

A. Took a sketch of it and measured it—the different parts when it was all to pieces.

16 Q. If you have since made a drawing of the said hydrant, please produce it and describe it.

(Objected to as inadmissible, the hydrant itself being in evidence and the drawing called for not being in reply to any evidence offered by defendants.)

A. I produce it.

676 (Offered in evidence and marked "Exhibit Drawing Bailey Hydrant.")

17 Q. Please describe it.

(Same objection.)

A. I made a full-size drawing except in length. Then I made a small sketch of it afterwards—of the drawing. This is the small one.

18 Q. Please compare "Exhibit Box Old Bartholomew Hydrant" with "Exhibit New York Hydrant-Box" and the latter's relation to the hydrant as shown in "Exhibit Board Model New York Hydrant" and state their points of difference.

(Objected to as immaterial.)

A. The "Exhibit Box Old Bartholomew Hydrant" answers the same purpose as the New York hydrant-box. If the Bartholomew hydrant-box was cut off and a flange put on the hydrant it would be similar to the New York hydrant-box. They both keep the dirt from the body of the hydrant, but not at the bottom.

19 Q. Please compare the "Exhibit New York Hydrant-Box" with the case upon "Exhibit Bailey Hydrant" and state how you find the same to agree or differ substantially.

A. The Bailey hydrant case fits top and bottom of the hydrant stock. The New York case fits only at the top of the hydrant stock. You cannot use a New York case with a Bailey hydrant or any screw-hydrant, on account of the dirt working up under the open space at the bottom of the New York case. Then, further, it would be impossible almost to gide them to the bottom so that the crew would enter it, so that they could be screwed down.

677 20 Q. You stated that the New York hydrant-box fits the hydrant at the top. Is there not a difference in the way and manner in which the New York hydrant-box fits the hydrant at the top and that in which the case on the Bailey hydrant fits the hydrant at the top? If so, please describe it.

A. The New York hydrant-box fits around a flange on the hydrant-stock; the Bailey case fits around a long enlargement on the hydrant-stock.

Cross-examination *de bene esse:*

21 C. Q. You say that the model "Exhibit Model New York Hydrant-Box" is made to a scale from the original box. Is it not relatively shorter than the original in proportion to its diameters?

A. I think it might be a very little; I might have made some little deviation in my scale.

22 C. Q. What is the ratio of the length of this model to its external diameter at the top?

A. Seven to two.

23 C. Q. What is the ratio of the length of the "Exhibit New York Hydrant-Box" to its external diameter at the top?

A. Four and one-half to one, or nine to two.

24 C. Q. Haven't you chamfered out the inside of this model at the top considerably more, relatively speaking, than the full-size New York hydrant?

A. I did not do it; it was not chamfered when it left the shop; I do not know when it was done; I made it to fit the model defendants' hydrant; I did not make that sharp chamfer.

JAMES FLOWER.

Adjourned until Tuesday, July 8th, at 10 a. m.

678 JULY 8TH—10 a. m.

THOMAS R. BAILEY, recalled in behalf of the plaintiffs, testified as follows:

1 Q. Please examine "Exhibit Board Model Race & Mathews Old-Style Hydrant" carefully, and state whether you ever saw any hydrants of that construction; if yea, when and where. Please do this in connection with "Exhibit Race, Mathews & Co. Lithograph."

A. I have examined both exhibits. I saw hydrants made about the year 1863, at Lockport, N. Y., substantially the same as these exhibits. I think there was about sixteen of them set in the streets at Lockport that year. I think some of them are in use there at the present time.

2 Q. Did you have occasion after first seeing those hydrants in use in Lockport to observe the same carefully? If so, state what called your attention particularly to them?

A. Early in the spring of 1865, while in Lockport on a visit—at that time I was living in Buffalo—while walking up Pine street, near the corner of Main, I saw a hydrant that was broken, and I examined it to see the cause, and I saw what I believed then and believe now to have been the cause, and I made a thorough examination of it, and made up my mind what was the trouble with the hydrant. The idea occurred to me how it could be remedied, and every time I saw any of the hydrants for several months afterwards I would examine to see if my first impressions were correct.

3 Q. Please describe carefully what you then considered to be the cause of the breakage of the hydrant, and how you proposed to remedy the same.

679 (Objected to as inadmissible and not proper subject of matter in reply.)

A. I saw the hydrant had an overlapping flange, which the curb-stone or the ground resting against it on the under side, when the ground became frozen, and expanding by the action of the frost, would strike this flange and either lift the hydrant out of its place or break it loose. The idea occurred to me that by putting the case

on the outside of the hydrant stock there would be no shoulder for the earth or curbstone to strike against.

4 Q. Please examine "Exhibit New York Hydrant-Box" and state whether you ever saw any boxes of that character or construction in use around hydrants; and, if so, where and when.

A. I don't think I ever did, like that.

5 Q. You were present at Lockport in April last and saw "Exhibit Bailey Hydrant" before it was dug up, and while being dug up, and after it was dug up, were you not?

A. I was, and saw it before it was dug up and after the earth was mostly thrown out around it and after it was taken out.

6 Q. State as near you can now when that hydrant was set, and by whom, in the place from whence it was dug out.

A. I think it was set in 1872, but I can't tell who did the work putting it in. I directed it to be put in.

7 Q. Please describe the locality particularly where it was set, and state fully in regard to its exposure by action of the frost, and as to surface water, and the character of the ground in which it was set.

A. It was upon Market street, just at the foot of the hill, Market-street hill being partly paved and partly macadamized, the
680 gutters being paved so that all surface water from the southerly side of, or rather on the westerly side of, the street from Chestnut street, and all on the easterly side of the street from a point about a hundred feet below the railroad bridge, had to run down the hill past the place where the hydrant was set, about 150 feet farther east, before it could get an outlet, except as it would run over the curbstones. The water many times in front of the shop, during a heavy shower, would be from six inches to a foot deep, running over the sidewalk and up to within two or three inches of the hoze-nozzle on the hydrant, the hydrant being set very deep in the ground—deeper than it ought to have been. The gutter in front of the shop, after these showers, would almost invariably be filled with sand level with the curb-stone. The soil in which the hydrant was set, for three or four feet deep, was a blue clay. I don't think the action of the frost was any different in that locality from any other where the soil was continually saturated with water, as it was at that point, being more so than many other places upon the street, from the fact that the trunk or water-tube conducting water to the shop was in a very bad condition and continually leaking.

8 Q. Please examine "Exhibit Bailey Hydrant Set-Screw" and state what you know about it.

A. I know that is the set-screw—at least I believe it is—that was taken out of the bottom of the case when the hydrant was dug up in April.

9 Q. By whose direction and for what purpose was this set-screw thus put in the bottom of the case?

A. I don't know by whose direction. I believe it was put in there for the purpose of chucking the case in the lathe while boring out the end of it.

10 Q. You saw the said "Exhibit Bailey Hydrant Set-Screw"
681 as it was taken out of the bottom of the case, in the presence of several gentemen, at Lockport, and counsel for both par-

ties to this suit, I believe. Please describe as briefly as possible its condition when first taken out and the result of your observation at that time, when the attention of all parties present was called thereto.

A. The condition of the screw was like any piece of iron that had laid in a wet place for a number of years, being badly corroded and covered with a slimy substance somewhat resembling oil and mud. The result of my observation was that the screw was placed there for the purpose of chucking it, or helping to chuck it, in the lathe. At that time I had no knowldge or recollection of the case having been bored out. After seeing the case taken off from the hydrant, I then saw that the case had been bored, and was then positive that this screw was put in for the purpose of chucking, as it had no bearing upon anything except the sides of the screw, the end not touching, and showing that it had not touched any hard surface.

11 Q. Will you explain what you mean by "chucking?"

A. In a machine-shop we often have pieces that have to be bored out on the inside, like a gear, pulley, pipe, pump-cylinders, or engine-cylinders. When we have a job of this kind it has to be held by some means from the outside. Very many shops have what is called a universal chuck. Some shops do not have these chucks, or if they have them they are too small for the job, and some plan has to be improvised to hold the piece to be worked. Sometimes we take a plank, bolting it to the face-plate of the lathe, turning out a place to receive the piece to be operated upon, holding the piece fast to the plank by means of bolts, straps, or set-screws, so as to turn the piece with the lathe. Sometimes we fasten pieces upon the bed of the lathe, holding the piece stationary while the tool is made to revolve, as in boring engine-cylinders. Either of these plans is termed "chucking."

682

12 Q. Then, in short, the placing and holding a piece of work in a lathe, like a piece of pipe, for the purpose of reaming or squaring it, is what you call "chucking it," is it not?

(Objected to as leading and assuming.)

A. It is; we may have very many terms in a machine-shop that are not technically correct, but pieces put in a lathe to be turned are "centered," driven by a "dog," and not by any chucking device.

13 Q. Were you present when the "Exhibit Bailey Hydrant" was taken out of the ground?

A. I was not.

14 Q. How did that happen that you were not present?

A. I was not notified of the time it was to be taken out, as had been promised I should be.

15 Q. You were present when the same was almost wholly exposed to view from the top to the bottom, and when the set-screw was taken out, were you not, and heard what Mr. Roberts said in regard to the matter as to what would be done in taking up the hydrant? If yea, please state what the arrangement was in that regard.

A. I was present, and understood the arrangement to be that we would go to dinner, and Mr. Roberts would give us ample notice of the time of taking out the hydrant, and we would all be present.

16 Q. When and where did you next see the hydrant?

A. I saw it in Mr. Trevor's warerooms, I think about 5 o'clock in the afternoon.

683 17 Q. In what condition was the hydrant at the time?

A. The hydrant laid there as though it had been recently taken out of the earth, badly rusted and covered with dirt; I think it was altogether, just as it was taken out.

18 Q. Please describe now what you saw done with the hydrant after this and who were present.

A. I think the first thing I saw done with it was Mr. Trevor, with one or two of his men, trying to remove the case, which they failed to do. I think at this time Mr. Roberts, Mr. Drennan, Mr. Hill, Mr. James Flower, and myself were present. Mr. Flower suggested that if they would warm it the case could be easily removed. The hydrant was then removed out doors in the street and a fire made with shavings and pine wood was kindled around it. After a few minutes, I should say fifteen, the stock of the hydrant was easily removed from the case; then, I think, they picked it up and carried it back into the shop or wareroom.

19 Q. Describe the position of the case as it was before it was taken apart and what you found between the case and the hydrant tube or stock, and the result of your observation of the several parts of the hydrant at that time.

A. The case showed that it had been raised from its original bearing about three-fourths of an inch. Upon removing the hydrant from the case there was shown to be about eight or nine inches of sand around the stock of the hydrant and inside of the case at the bottom. The other parts of the hydrant all appeared to be in proper position, the same as when first made, and in the same condition, except from rust and dirt which had accumulated.

684 20 Q. How did this sand get in the position in which you found it between the case and the hydrant stock?

A. I believe it got in there from the top by the continued floods that came down the hill, as spoken of before.

21 Q. You state that you discovered that the case had been bored out. What was the reason of its being bored out?

A. In putting the hydrant together it was found to be too close; it was bored out so as to allow the freer action in taking the stock from the hydrant at any time.

22 Q. Counsel for the defendant has introduced in evidence "Exhibit Board Model Bailey Hydrant;" please examine the same and compare it with "Exhibit Bailey Hydrant," and state wherein it agrees or differs from such hydrant.

A. The general construction is the same except that shoulder under the bead. There is none upon the hydrant except as left when turning it off.

23 Q. Please examine "Exhibit Board Model New York Hydrant, understanding that the same represents the relation of "Ex-

hibit New York Hydrant-Box" to the hydrant, and compare the two structures thus shown by said board model with "Exhibit Bailey Hydrant," and state in what respect you find them to agree or differ with the same.

(Objected to as immaterial, and also as inadmissible, not being in the nature of evidence in reply.)

A. I find them to differ. In the Bailey hydrant the case has a bearing upon the bottom of the hydrant and also around the stock of the hydrant at the top. In the New York hydrant I find that the stock at the top has a flange cast around it to fill in the
685 top of the case—I should say like a barrel head—at the bottom the wooden case having no bearing upon the hydrant, simply resting upon the ground, or, perhaps, upon the branch from the main to the hydrant, not coming nearer than, I should say, five inches to the stock of the hydrant on either side.

24 Q. Please state whether the purpose for which the case on the "Exhibit Bailey Hydrant" was made can be fulfilled by a structure like that of "Exhibit New York Hydrant-Box" when set in position and having the relation to the hydrant as shown by "Exhibit Board Model New York Hydrant."

(Same objection.)

A. I don't think it can.

25 Q. Please state your reasons for such opinion.

(Same objection.)

Adjourned until 2 p. m.

A. The New York hydrant—the bottom of the case being so large, resting upon the ground; the top being so large, admitting of so much surface water by a continual use of the hydrant, the leakage therefrom and surface water at the top settling around the bottom of the hydrant, softening the earth, raising it more or less inside of the case when the hydrant is taken out, if ever it is done without removing the case, the earth falling into the elbow after removing the stock of the hydrant, and there being nothing at the bottom to guide the stock of the hydrant when replacing it, it would be nearly impossible to replace the stock of the hydrant without digging up the earth and cleaning it out, so as to allow it to return to its original seat—that is to say, the New York hydrant-box.

26 Q. How does the same structure as exhibited in "Ex-
686 hibit Board Model New York Hydrant" compare with the case upon the Bailey hydrant as to their capacity to receive the movement imparted by the upheaval of the earth by freezing without disturbing the hydrant proper?

(Same objection.)

A. I should say that the action of the frost upon this New York hydrant-box would have no effect upon the box at all; if it did, the frost would act upon the hydrant stock as forcibly as it would upon the box—that is, as a point of freezing. I don't believe this New

York box would be raised at all. The peculiar construction of the box would hinder it from being lifted by the frost unless it froze clear to the bottom, when the case upon the Bailey hydrant, being parallel through its entire length, except the small flange at the bottom, and there being no chance for the water to get inside of it, except as it passes under from the outside, consequently raises easier, and, as the frost or earth clings to it, from the action of the frost it raises it up gradually.

27 Q. It has been intimated that in making your patterns for hydrants, or the models thereof, you took your plans from Race & Mathews' manufactured article; that your shops were very near to theirs; that you were frequently out and in their shops, offices, pattern-makers' room, and had abundant opportunity so to do. What have you, if anything, to say in regard to this?

A. I will say that any such intimations or accusations as to my ever taking any plans, or measured from any of their manufactured hydrants, patterns, or castings are untrue. I never measured any portion of their hydrants or any of their work. My first hydrant was made and in use before I knew they had made or contemplated making any changes.

687 28 Q. Please examine "Exhibit Race, Mathews & Co. Lithograph" and state whether you remember to have seen and examined any copy thereof other than said exhibit; and, if so, when and where.

A. I couldn't say; I have seen so many of these pictures I don't know as I could discriminate between them.

29 Q. Please examine "Exhibit Niagara Manufacturing Company's Lithograph" and state whether you remember to have seen and examined any copy thereof other than said exhibit; and, if so, when and where.

A. I don't think I ever did.

30 Q. Please examine "Exhibit Duval & Hunter Lithograph" and state whether you remember to have seen and examined any copy thereof other than the said exhibit; and, if so, when and where.

A. I don't think I ever did.

Adjourned until Wednesday, 9th, at 10 a. m.

WEDNESDAY, *July* 9—10 a. m.

Present: Counsel as before.

Certain necessary exhibits not having arrived, adjourned until Thursday, 10th, at 10 a. m.

THURSDAY, *July* 10, 1884.

Examination of THOMAS R. BAILEY resumed.

31 Q. When did you last see "Exhibit Bailey Hydrant?"

A. About five minutes ago; it is here before the examiner, in the adjoining room.

688 32 Q. In looking at "Exhibit Bailey Original Model," a witness for the defendants states: "I find further in the model that the lower end of the movable casing C, just above the

socket, has been chamfered out after it has been cast so as to have a sufficiently large bore to slide over the top of the ring-nut M." With that model now before you please explain in regard to this fact, if you desire to do so.

A. In casting pipes or tubes, or any piece of casting where a core is used, the apertures made by cores are almost invariably of a different shape from what they are intended to be. Upon examining this case I find that this fact holds good with this casting, the core being slightly oblong. Upon placing the case upon the base of the hydrant I find that it fits so closely that I believe it would not have fitted upon there when first cast, except that it be bored out, which I find upon examination is the fact. The chamfering I find was done with a file, which leads me to believe that it was done in the usual course of cleaning the casting from sand and scale, which is the invariable practice in machine-shops where castings are used. I further find upon examination, upon measurement, that if the internal diameter of the case had been true, as designed, that it would pass over the ring-nut without touching it upon either side, and that the boring out could only have been done to correct the imperfections of the casting.

33 Q. The same witness further says, concerning this model, " that the washers in it have been unnecessarily doubled, and in another place made much thicker in proportion than is necessary." Please carefully examine the model and explain this matter as fully as you desire to do.

(Objected to as inadmissible, because the witness' attention was called to this matter in his former deposition and he was
689 given ample opportunity to make the explanations now called for, and his re-examination upon the same point is not proper matter of evidence in reply.)

A. I find, upon examination of the washers, that they are cut from either a piece of string-leather or old boot-leg, being cut, as I should say, with a jack-knife. The leather being very thin, I believe two pieces were used to compensate for the unevenness of the leather, not having proper packing leather (which is usually about one-eighth of an inch thick) at hand to make the rings of.

34 Q. Where was this model at the time when you made your application for the reissue No. 6990.

(Same objection.)

A. It was in my possession, in the city of Lockport.

35 Q. State whether this model was used in any way in obtaining the said reissue; and, if so, where, when, and how.

(Objected to as inadmissible, not being a proper subject of evidence in reply.)

A. I don't think it ever was.

36 Q. When were the patterns made, as near as you can remember, for the castings of "Exhibit Bailey Hydrant?"

(Same objection.)

A. I think they were made in the spring of 1867.

37 Q. From what patterns was the hydrant which you delivered to James Clapham, and which was set in Lockport on Transit street, made?

(Same objection.)

A. All full size hydrants that I ever made were made from the same patterns.

690 38 Q. Please carefully examine and compare "Exhibit Bailey Original Model" with "Exhibit Bailey Hydrant," and state how you find them correspond or differ substantially in their structure.

(Same objection, and also that it is immaterial.)

A. I should say in the main they are exactly alike. The hose-nozzle of the model has no outward projection for a wrench, which the large hydrant has, the waste-valve being attached in a slightly different manner, one having a leather and the other a metal hinge, the cap to the hydrant proper being screwed upon the model and bolted with set-bolts in the hydrant, the hydrant having two hose-nozzles instead of one, as shown in the model.

39 Q. Please carefully examine "Exhibit Race & Mathews Hydrant," understanding that the "Exhibit Board Model Race & Mathews New-Style Hydrant" substantially represents the construction of the same, and without taking the said hydrant apart, and state where and when, as near as you can now remember, you first saw a hydrant of this pattern.

(Same objection.)

A. I think it was about the year 1869 or 1870, on Main street, in the city of Lockport, near what is called the Union hotel. My attention was called to it from the fact of a hydrant having been broken by a team running against it. It was about being replaced with a new one.

40 Q. Upon the tube A, as shown in the drawings of both the original and reissue of the Bailey patent, "Exhibit Bailey Original Model" and "Exhibit Bailey Hydrant," there appears to be, at the lower end, an enlargement, and a corresponding enlargement near the ground base of the hydrant. For what purpose is this?

691 (Same objection.)

A. The enlargement at the bottom answers two purposes—one to give plenty of water as it passes into the body of the hydrant, thus saving the breaking of the stream of water, allowing it to pass through the hydrant in an unbroken stream, which is and always has been a fault in most hydrants. Another purpose is to give sufficient room for the ring-nut holding the base of the hydrant, and to allow for proper packing of the valve. The enlargement at the top of the hydrant at the ground base is made to conform to the enlargement at the bottom, so that the case to the hydrant may be parallel through its entire length, so that in removing the hydrant

from the case at any time in replacing the hydrant these enlargements nearly filling the case forming a guide in screwing the hydrant back to its seat into the base.

41 Q. As to these features how does the "Exhibit Bailey Hydrant" compare with the several exhibits of the Race & Mathews hydrants, respectively, referring now particularly to the same as represented in the board models, "Exhibit Board Model Bailey Hydrant," "Exhibit Board Model Race & Mathews Old-Style Hydrant," and "Exhibit Board Model Race & Mathews New-Style Hydrant?"

(Same objections.)

A. I should say that the old-style Race & Mathews hydrant was the same. In the new-style Race & Mathews hydrant the enlargement at the top of the case is greater than at the bottom. These conclusions are arrived at without measurements.

42 Q. Suppose you place around these hydrants, either of them, a wooden casing substantially like the New York hydrant-
692 box, as represented in its relation to the hydrant in "Exhibit Board Model New York Hydrant." Would not such a casing, in your opinion, as to these features, perform the same office as the outside casing upon the Bailey hydrant or the Race & Mathews hydrant?

(Same objections; also as leading.)

A. It would not.

43 Q. Why?

(Same objections.)

A. One reason is that the case being so much greater at the bottom than at the top, it would not form any guide in returning the hydrant to its place after being removed for any purpose; also sitting upon the ground, as it necessarily must at the bottom, it gives a chance for the earth in case of leakage, and in many cases the waste water, not being properly conducted away from the hydrant, saturates the earth, causing it to rise in many instances, as I have before stated, making it almost impossible to return the hydrant to its place without digging up the whole case, and not acting in any manner as a support to the stock of the hydrant.

44 Q. Please explain how the outside case upon the Bailey hydrant and the Race & Mathews hydrants support the hydrant.

(Same objections.)

A. The case, fitting closely about the hydrant both at top and bottom, being held firmly in its place by the earth around it, thus holds the hydrant without any perceptible vibrations, either at the top or bottom.

45 Q. Please examine "Exhibit Board Model New York Hydrant," leaving out of view the representation of sections of the wooden case, and state whether you ever saw a hydrant of that construction; and, if so, where and when.

693 A. I don't think I ever did.

46 Q. That seems to have the parts A and B—that is to

say, the hydrant-tube and the branch of the main, the valve, and the stuffing-box, common to modern hydrants, from the representation in the "Exhibit Board Model New Yark Hydrant." How do you understand the parts A and B to be united—that is to say, the tube from which the water is discharged by the intervention of the nozzle and the lower part or section which appears to be a branch of the main?

A. Without any further knowledge than what might be gained by looking at this board, I should believe it to be connected by a lead socket-joint.

47 Q. In a hydrant of that construction what would it be necessary to do in order to repair or repack the valve?

(Objected to as immaterial, and also as inadmissible, not being in the nature of evidence in reply.)

A. The first move necessary would be to shut the water from the main; the next would be to dig up the hydrant, so as to get at the lead joint, that it might be melted in order to allow the hydrant to be removed.

48 Q. As we have not been favored with any other representation of the construction of the New York hydrant than that represented in "Exhibit Board Model New York Hydrant," and the statement of witnesses that the same is a representation of the "Ayres Hydrant" I now show you a circular of what purports to be "Ayres' improved fire-hydrant and stop-cock," containing a full description of the hydrant therein shown. Please examine the same, and, assuming that the hydrants used in the city of New York are of this construction, and that "Exhibit New York Hydrant-Box," if
694 it ever were used anywhere around a hydrant, was set around a hydrant of the construction shown in this circular, so that the top were set around the flange at the ground base of the hydrant, in your opinion for what purpose was the case there?

(Objected to as inadmissible and incompetent, the paper referred to not being authenticated, and the statements of counsel in respect thereto being wholly gratuitous and unwarranted. Further objection is also made that the question is immaterial, not in the nature of evidence in reply.)

A. Judging from the cut of the hydrant as shown me, and after reading the description of the same, finding no mention made of the wood case, I should say if the wood case was ever used around a hydrant of this construction that it was put there by the parties setting the hydrant for the same purpose that I have seen wood cases put around hydrants in the cities of Buffalo and Chicago—that is, that they might be filled with straw, manure, or tan-bark, to prevent the hydrants from freezing.

Adjourned until 2 p. m.

2 O'CLOCK P. M.

(Counsel for plaintiffs asks the examiner to mark the circular referred to in the last preceding interrogatory "Aryes Circular" for the purpose of identification; it is so marked.)

49 Q. As near as you can judge, what is the weight of "Exhibit Bailey Hydrant?"

A. I should say it was about 400 pounds.

50 Q. What is the weight of the outside case upon the same?

A. I should think from 125 to 150 pounds.

695 51 Q. When the hydrant is set perpendicularly what effect has this weight upon the outside case?

A. The effect is to hold it down to its seat upon the base of the hydrant.

52 Q. You have stated that you found this case raised from its seat three-quarters of an inch when it was dug up at Lockport. What raised the case, or how was it raised?

A. I think the case was raised by the action of the frost, as I don't believe any other power could have raised it.

53 Q. What held it in position and, in your opinion, prevented it from going back to its original seat?

A. The sand which had accumulated inside of the case around the body of the hydrant.

54 Q. How did this sand get there?

A. It came in from the top, as I have before stated.

(Counsel for the plaintiffs offers in evidence certified copy of a record from the office of the clerk of the Supreme Court of the United States in the case of Samuel R. C. Mathews *et al.*, appellants, *versus* The Boston Machine Company, appellee, marked "Exhibit Record, Mathews *vs.* Machine Co.")

(Counsel for defendants objects to the introduction of the said record in evidence as inadmissible, incompetent, immaterial, irrelevant, and unnecessarily encumbering the record of this case.)

(Counsel for plaintiffs also offers in evidence the file-wrapper and contents in the matter of the letters patent granted T. R. Bailey, Jr., March 10th, 1868, No. 75344, marked "Exhibit File-Wrapper and Contents, Bailey Original Patent.")

(Also a certified copy of the file-wrapper and contents in the
696 matter of the reissue letters patent granted Thomas R. Bailey, Jr., March 14th, 1876, No. 6990, marked "Exhibit File-Wrapper and Contents, Bailey Reissue.")

(Also certified copy of the file-wrapper and contents in the matter of the letters patent granted W. Race and S. R. C. Mathews January 26th, 1858, No. 19206, marked "Exhibit File-Wrapper and Contents, Race & Mathews 1858 Patent.")

(Counsel for defendants objects to the introduction in evidence of the three last-named exhibits as immaterial, inadmissible, and not in the nature of evidence in reply, and also as unnecessarily encumbering the record of this case.)

(Counsel for plaintiffs also offers in evidence certified copy of the file-wrapper and contents in the matter of the reissue letters patent granted Nancy Race, administratrix, and others February 26th, 1884, No. 10452, marked "Exhibit File-Wrapper and Contents, Reissue Race & Mathews 1869 Patent.")

(Counsel for the defendants objects to the introduction in evidence

of the said last-named file-wrapper and contents as inadmissible, incompetent, immaterial, irrelevant, not forming any proper part of evidence in reply, and unnecessarily encumbering the record of this case.)

55 Q. In prosecuting the application for said reissue No. 10452, the attorney for Race & Matthews represented as follows: "Now, so far as Bailey is concerned, the examiner will see that this patent was cited by official letter December 17th, 1868, on the original application, and the facts were then brought out. Bailey was a workman who came to Mathews' shop when he was constructing his hydrants, and while Mathews was experimenting Bailey went to work and applied for a patent on another construction of valves and stock,
but, thinking the Mathews & Race jacket a good thing, put
697 it in his drawing, but never dared to claim it." This is contained in a communication dated Philadelphia, January 19th, 1883, over the signature of R. M. Hunter, directed to Hon. Commissioner of Patents. When, where, and how did you first learn of this representation?

(Objected to as inadmissible and incompetent, first, because not proper evidence in reply; second, because no foundation was laid for the introduction of the representation contained in the question, or for any evidence in contradiction thereof, in the course of the examination of any of the defendants' witnesses; third, because the representations so quoted are those of a person not called as a witness and having no authority to make the statements on behalf of the defendants, or of either of them.)

A. I learned it yesterday, in Mr. Flower's office, by hearing it read by Mr. Hill.

56 Q. What have you to say, if anything, with regard to those representations?

(Same objection.)

A. They are untrue in every particular.

57 Q. Please state any other fact or thing touching the subject-matter of this examination, which may be of benefit or advantage to either of the parties in this suit, not already testified to by you.

(Objected to as inadmissible and incompetent, not calling for evidence properly in reply.)

A. I don't think of anything.

No cross-examination.

T. R. BAILEY.

Adjourned until Friday, July 11th, at 9 o'clock a. m.

698 FRIDAY, *July* 11—9 o'clock a. m.

DELOS E. RICE, a witness produced and sworn in behalf of the plaintiffs, testified as follows:

1 Q. What is your name, age, residence, and occupation?

A. Delos E. Rice; age, 55 years; Detroit; machinist.

2 Q. How long have you resided in Detroit?

A. Thirty-seven years.

3 Q. How long have you been a machinist?

A. I commenced then to learn my trade.

4 Q. How actively have you been engaged, from that time to the present, at your trade?

A. Continually.

5 Q. Have you examined letters patent No. 75344, dated March 10th, 1868, granted to T. R. Bailey, Jr., for improvement in hydrants, and also letters patent reissue No. 6990 of the same patent, and do you understand the construction and mode of operation of the things described in those patents?

(Objected to, as the witness has not been shown to be qualified to testify as to the subject-matter of those patents or to compare the things described and shown therein.)

A. I think so; yes.

6 Q. Please compare these two patents together, and state what you find to be described in either one of the same, if anything, that is not described in the other, having reference to the drawing attached to each.

(Same objections.)

A. All the difference that I can see is that this bead on A, original drawing, is closer to the sleeve than it is on the same parts in the reissue. I don't know that I see anything else.

699 7 Q. Have you examined "Exhibit Bailey Hydrant?"

A. Yes, sir.

8 Q. Have you examined "Exhibit Bailey Original Model?"

A. Yes, sir.

9 Q. Understanding that the said model correctly represents the construction of the said hydrant, please now compare the said model with the drawing of the original patent No. 75344, and state how you find them to substantially agree or differ.

(Objected to on the ground that the witness has not been shown to be qualified to make the comparison called for.)

A. I have examined those two drawings and I see no difference between the model and the drawing.

10 Q. But do you not notice a difference between the space shown in the drawing and that exhibited by the model with the case C resting on its seat upon the base between the bead on the ground base of the hydrant and the top of the case or sleeve; if so, why do you say that you find no difference between the drawing and the model?

(Same objections.)

A. Well, there is an apparent difference between the drawing and the model. I don't think there was intended to be any difference by the draughtsman. It was a mere mistake in getting it a little closer than was intended. For all practical purposes the drawing is sufficient. There is a small space there which, if it had been drawn

to a larger scale, would have shown a greater space, but which is immaterial for manufacturing the machines. It is really what you might call a "clerical error." I don't know that there is anything more.

700 11 Q. Please examine carefully the said drawing, No. 75344, and explain the difference, if there be any, between the joints or fit of the said case C at its bottom and the top.

(Objected to as incompetent on the ground of want of qualification.)

A. No, sir. I don't see any difference, only it rests on a shoulder at the bottom end.

12 Q. In the drawing the bead, of which you have spoken, to your eye, as a practical mechanic, shows you what kind of a joint should be made in constructing the article? If so, please describe how and why. I refer to the joint or fitting of the case to the stock at its upper end, as shown in the drawing.

(Same objection.)

A. I see no necessity for the bead there. It would be only a matter of ornament, and could be placed lower or higher. I don't know that it reads very well, but I guess that is all there is of it.

13 Q. In referring to this tube C and this drawing, a witness for the defendants in this case has testified that "the upper part of this tube surrounds the upper part of the hydrant proper with a pretty close fit, and just above the top of the loose tube there is a bead on the hydrant proper which would prevent the rising of this tube C." As a practical mechanic, on examining the drawing, how do you find this to be; understanding that the tube C is to be a loose casing round the hydrant tube for protecting it from dirt, etc.?

(Same objection.)

A. I should say that any one in making a hydrant from the drawing wouldn't make it so close as that as to prevent the casing from having an up and down motion.

701 14 Q. In this patent the parts A and B, as described and shown in the drawing, are said to be connected together. Please examine the drawing and state, having also reference to the model, how the parts practically should be thus connected.

(Same objection.)

A. The drawing and the model shows what you might call a bushing screwed into B, and the part A screws into the bushing, thus connecting them together.

15 Q. State whether or not you find a further connection between the two parts A and B when the casing is in its place.

(Same objection, and also as leading.)

A. When the casing is in its place it makes a connection of the whole together, making one complete hydrant.

16 Q. Supposing that we were to place upon the hydrant with the ports A and B connected together only by the bushing, with the

casing C—as shown in the patent—left off, and substitute for it a wooden box of the construction "Exhibit Model New York Hydrant-Box," understanding that the top of the box were to fit closely around the hydrant at its top but open at its bottom, what office, if any, would such box perform in connecting the parts A and B together?

(Same objection as to want of qualification.)

A. The wooden box wouldn't keep the dirt out at the bottom, and it wouldn't serve as a guide to screw the hydrant marked A into its place. It might partially keep the dirt out, but it wouldn't be so good nor it wouldn't be as complete a looking hydrant as if it were all iron, as shown by the model or drawing. It would soon rot out and would be useless. It takes up more room in the street.

702 17 Q. As a practical mechanic, in constructing a hydrant according to the specification and drawing of the original patent, supposing that you were to make the parts A and B as shown, what use could you make of such a structure as that represented by "Exhibit Model New York Hydrant-Box" as a substitute for the tube or casing C in conforming to that drawing?

(Same objection.)

A. I think it would be a poor substitute. I don't think you could make much use of it at all.

18 Q. Why not?

A. For the reason it wouldn't keep the dirt out from the bottom, and you couldn't replace the hydrant proper without considerable difficulty. It wouldn't be the proper thing to put there. It would be a mere makeshift.

19 Q. Are you familiar with what is known as the "clack-valve;" if so, how long have you been familiar with it?

A. 35 or 40 years.

20 Q. Please examine the article now shown you and state what it is.

(Objected to as immaterial.)

A. I should call that a clack-valve.

Plaintiff's counsel offers the same in evidence, marked "Exhibit Clack-Valve."

(Same objection to the exhibit as to the last preceding question.)

21 Q. Please give instances of where you have seen a clack-valve in use?

A. I have seen it in use in hand-pumps for raising water from wells; also for steam-engines.

(Same objection as to question and answer.)

No cross-examination.

D. E. RICE.

703 2 O'CLOCK P. M.

WILLIAM A. PENDRY, recalled for plaintiffs, testified as follows:

1 Q. When you testified before in answer to interrogatory 1 you were chief engineer for D. M. Ferry & Co. What is your present occupation?

A. Superintendent of the erection and construction of power and machinery for the Peninsular Car Co., Detroit, Michigan, at their new works.

2 Q. Some question was made by defendants' counsel as to your right to place the initials M. E. after your signature as you made it to your former deposition in this case. Have you anything to say as to your right to use these letters at the present time? If so, please do so.

A. Upon due investigation and examination by the counsel of the American Society of Mechanical Engineers I was considered as a proper person to be elected as a member of that society, and was so admitted by regular ballot.

3 Q. When?

A. In March last.

4 Q. Please examine the letters patent Bailey original No. 75344 and Bailey reissue No. 6990, and state how long you have been familiar with those patents and the structure to which the same relate?

A. I became familiar with patent No. 75344 some time previous to the writing of the letters referred to in my previous examination, in consequence of the conversation between myself and Flower Brothers relative to the purchasing of the patent from Mr. Bailey. The reissue I have been familiar with from its first inception, having been a party thereto in consequence of my employment.

704 5 Q. You have examined "Exhibit Bailey Hydrant" now in the adjoining room, have you not?

A. I have.

6 Q. Understanding that "Exhibit Drawing Bailey Hydrant" is a correct representation of that hydrant, please compare the same carefully with the drawing of letters patent No. 75344, and state how you find them to correspond, and what substantial difference, if any, there may be between them.

(Objected to as immaterial, irrelevant to the issues in this cause and not proper evidence in reply.)

A. There is no material difference.

7 Q. Please make the same comparison between the same drawing and the drawing of letters patent No. 6990?

A. They are substantially the same.

8 Q. Please compare these two patents together and state what you find to be described in the reissue 6990 and referred to in the several claims thereof, which is described or which is not described in the original, No. 75344.

A. I have already compared these patents, and I find the descrip-

tion of one corresponds with that of the other, excepting that in the first claim of the reissue No. 6990 functions are described which do not in any way change the claim. Functions not being patentable, the rest of the claims are also in accordance with those of the original patent, No. 75344.

9 Q. State how you arrive at this conclusion fully in your answer.

A. By placing the claims together, as I have done here, they better elucidate the subject, and having the drawings both before me, I find in the first claim of the patent No. 75344 the following:

705 "What I claim as new, a hydrant or water-plug constructed substantially as shown and described—that is to say, with the parts A and B connected together as shown." On referring to the drawing I find that this gives me a whole hydrant; the valve, however, is not described. I further find stated, "and with a cylinder-valve and a waste-water valve connected and operated in combination substantially as herein specified." The word "specified" here signifies as shown on the drawing, and gives me the whole hydrant as was shown before—that is, the parts A and B connected together as shown, with the addition that I have been shown a certain form of valve that can be used in this hydrant, not in any way interfering with the previous claim of the parts A and B, connected together as shown on drawing, even should I use another form of valve, as I should still have the hydrant as shown and described before. I come to claim second, now, of the original patent: "The arrangement of the parts A, B, valve D, case C, and stuffing-box H, as herein described and for the purpose specified." This I find again merely describes more fully the whole hydrant as in claim one, the parts A and B connected together as shown in the drawing. Now, coming back to the reissue of this same patent No. 6990, I find the claim as follows: "What I claim is, first, in combination with a hydrant or fire-plug, a detached and surrounding casing, C." This is all that forms that claim, that which follows merely being a function of the said detached and surrounding casing, and I should say was merely put there as descriptive, the attorney well knowing, from his standing, that such function was not patentable. I find as follows, second claim: "In combination with

706 a hydrant or fire-plug pipe A, a supply-pipe B, and cylinder-valve and waste-valve connected and operated substantially as herein shown and descrebed." This merely, on referring to the drawing, brings me back to a hydrant proper, the same as shown in both drawings. The third claim, "the combination of a hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, stuffing-box H, substantially as and for the purpose shown." Here I find that I have nothing more than a recapitulation of all the parts there is about the hydrant to more properly define it to enable one to construct the hydrant exactly as the inventor intended, and I fail to discern any discrepancy in the claim whereby I should construct one of the hydrants different from the other. I state this matter of construction as a practical mechanic.

(Answer objected to as inadmissible and incompetent, the same being an argumentative attempt to construe the language of the claims, the interpretation of which is matter of law for the courts.)

10 Q. What do you refer to when you say "by placing the claims together, as I have done here?"

A. Writing them down on opposite sides of this sheet of paper so that I could more easily compare them with the drawings than I thought I could in any other way.

11 Q. Please produce this sheet of paper and append it to your deposition as a part of your answer.

A. Here it is.

(Witness produces paper offered in evidence by plaintiffs' counsel marked "Exhibit Pendry Comparison.")

12 Q. A witness for the defendant has stated as follows: "The original patent describes a tube C, arranged around the hy-
707 drant proper and enclosing an air space between this tube C and the exterior of the hydrant proper," this referring to letters patent No. 75344. What do you find to be the fact in this regard in these letters patent?

A. I find nothing at all about the air space mentioned here.

13 Q. This witness further says: "The upper part of this tube surrounds the upper part of the hydrant proper with a pretty close fit, and just above the top of the loose tube there is a bead on the hydrant proper, which would prevent the rising of this tube C." Have you anything to say in regard to this bead, and do you agree with this witnesss in this matter?

A. The bead around the hydrant-stock is merely a matter of ornament, misplaced, and is not claimed in the patent; and I find it nowhere mentioned in the specification, and I think it not patentable. As regards the looseness of the fit, the drawing would delineate it correctly, judging from the scale of the drawing and the hydrants as manufactured.

14 Q. When was your attention first called to this bead, and the distance between it, as shown by that drawing, and the top of the loose case or sleeve?

A. As I stated in my previous examination, during the conversation with myself and Mr. Flower, and, after reading the specification over, I concluded that the drawing was not correct. In point of fact, as a whole it is a miserable drawing, and I stated to Mr. James Flower that this bead had no business there, and the outcome of this diagnosis of mine was the cause of the writing a letter enclosing a small tracing which I have before shown you.

15 Q. The witness before referred to for the defendant says
708 further: "The first claim of the Bailey original patent, as I understand it, is to the combination of the hydrant proper—that is, the tube through which the water flows to the water-main B when they are connected together as shown—that is, by means of the ring-nut M, the patent stating that the tube A is secured to the section B by the ring-nut M." This seems to differ from the

construction which you have placed upon this part of that claim, in this, that you have added, as a substantial part of the connection between the parts A and B, the loose casing around the hydrant tube C. Please state why you make this addition.

A. The claim as I take it says: "Constructed substantially as shown and described—that is to say, with the parts A and B connected together as shown." This brings me to the drawing for the hydrant, and I find it is connected—that is, the stock A with the part B, by a screw-thread and with a sleeve C, forming a slip-joint. The word "connecting" does not define that it is a rigid connection, and in machinery there are many joints which are not rigid and yet are *bona fide* connections. In illustration of this, I will take a steam-pipe, where it is necessary to allow for expansion, the one pipe being slipped within the other, other joints being screwed together, and yet the pipe is just as much connected where the one joint slips in the other as were they rigidly connected by the aid of the screw, and I take it that this hydrant would not be constructed as shown and described if this caisson or tube C was omitted, it being a part and parcel of the hydrant, helping very materially to strengthen it.

16 Q. According to the letters patent, how must this tube be connected at its junction with the part B, or seated?

709 A. By being slipped over the upper part of the elbow B and resting on a shoulder constructed within itself or a seat formed upon the top of the elbow B, some distance down, to form a seating for it. It should be also fitted more snugly here than at the top.

17 Q. Why so?

A. To keep substances from getting between it and the hydrant, and also to impart that stiffness or solidity to the hydrant-stock which is desirable.

18 Q. Supposing that you place upon the hydrant in place of this tube or casing C, and in lieu thereof, a casing in the shape of a frustum like "Exhibit Pendry Model," so that it shall connect the parts A and B together substantially as shown in its relation to the hydrant as exhibited in and by "Exhibit Defendants' Model," with the sliding case removed therefrom and the Pendry model substituted in place thereof, as the same is now before you, what effect would this change of form of the casing have in view of this construction, that the casing C connects the parts A and B together, as shown, and why would not this casing, like Pendry model, be within this claim of the patent?

A. The casing, "Exhibit Pendry Model," now upon the "Exhibit Defendants' Model," does not in any way form a connection between the hydrant-stock and the base, as it is the frustum of a cone and merely rests upon the elbow, thereby giving to the hydrant none of its own strength as would be imparted to the hydrant with the frost-case constructed as shown in the "Exhibit Defendants' Model," which belongs thereon. If the hydrant were set in the ground, as constructed according to the specifications of the patent, it would

withstand a blow on the hydrant-stock equal to its own
710 strength, with the additional strength of the jacket surrounding it; whereas, if it was set as shown in the frustum of a cone now upon it, and that of the loose earth surrounding the frustum of the cone, not imparting any of its strength to the hydrant stock. Further, this frustum of a cone is, in my opinion, a very poor substitute for the casing C, performing none of its functions. It would be almost impossible, after withdrawing hydrant-stock from the base B, to re-enter it again in replacing, it as it forms no lead for the screw.

19 Q. How would it be as to a protection to the hydrant from dirt, etc., at its bottom, and also as against the upheaval of the earth surrounding it by freezing and thawing, as compared with a loose case shown in the patent, and especially in the reissue?

A. The casing, marked "Exhibit Pendry Model," now upon the "Exhibit Defendants' Model," forms a very poor protection against dirt accumulating around the hydrant-stock, in consequence of the action of rain storms, and also its own weight, which leaves the hydrant under pressure, continually washing up the earth on which the hydrant rests, which is replaced from the outside, ultimately filling up the inside of this jacket for quite a distance. It also forms a large damp-air space, in which fungus plants grow, ultimately filling the most part of the casing, as can be satisfactorily proved at any time by examining an old Bartholomew hydrant, with this proviso that it is not set in hard clay or sharp sand. In the casing, as properly constructed, it is too closely fitted for dirt to work up into it, and these fungus growths of which I speak do not occur. As regards the frost, the frost-case, "Exhibit Pendry Model," when seized by the frost at the top would not lift, as the base being so much larger than the top it would be impossible
711 for it to raise without lifting a large area of the surrounding surface. The action would be similar to that of a straight jacket of the diameter of this frustum carried down to the base with a plate upon it equal to the diameter of the base of the frustum, and to lift it a column of earth of the same diameter as this base would have to be lifted before this casing would be raised. In the casing properly constructed as per specification of patent this defect does not occur, as the casing is straight from top to bottom, having no part to catch the earth and prevent its raising.

20 Q. A witness for the defendants has stated it to be the result of his observation that things imbedded in the ground are raised when the ground begins to thaw. What is your theory, from the result of your observation, as to this and the action of the frost through the surrounding earth in its upheaval?

A. I have no theory upon that subject. It has been a demonstrated fact that water expands when its temperature is cooled below that of thirty-two degrees Fahrenheit. The earth containing a quantity of moisture, as these particles of water expand in cooling they naturally separate the particles of earth, causing the upheaval noticed when the earth is frozen.

Adjourned until Saturday at 10 o'clock a. m.

JULY 12—10 o'clock a. m.

WILLIAM A. PENDRY, continued.

21 Q. Please examine "Exhibit New York Hydrant-Box" carefully, also "Exhibit Board Model New York Hydrant," understanding that said board model represents the New York hydrant-box set around the hydrant, and state whether you ever saw any hydrants of that construction with boxes of that character thus set around them.

712 A. I have.

22 Q. Where and when?

A. In the city of Detroit, on Woodbridge street. The time I cannot define, except that it was during the term of my engagement with Flower Brothers.

23 Q. Please examine "Ayres' Circular," now shown you, and state whether or not those hydrants mentioned in your last preceding answer were not constructed substantially according to that shown in said circular.

(Objected to as immaterial and leading.)

A. They were constructed substantially the same.

24 Q. For what purpose is the wooden case, as you understand it, used around hydrants of that construction?

(Objected to as inadmissible and incompetent, the question not being based upon any evidence of the structure prior to date of Bailey original patent.)

A. To protect the waste-valve.

25 Q. Please examine "Exhibit New York Board Model," and state whether you can find exhibited there any hint or suggestion of a waste-valve.

A. I do not. I find, however, a small hole for wasting water from the hydrant, which hole discharges water during the whole time the hydrant is in use, which under pressure is a very large quantity, and was found by various water boards to be very objectionable.

(Question and answer objected to as immaterial, and also as not forming any part of evidence in reply, and no foundation being laid therefor by plaintiffs' counsel when he had an opportunity, if he thought fit, to inquire of defendants' witnesses as to the precise construction of the waste-valve used upon the New York hydrant.)

713 26 Q. Assuming and understanding that "Exhibit Board Model New York Hydrant" is a full and correct representation of the Ayers hydrant, concerning which witnesses for the defendants were interrogated by the counsel for Samuel R. C. Mathews and R. D. Wood & Co., of Philadelphia, also representing the city of Detroit, the nominal defendant in this suit, please again carefully examine said board model and state whether you ever saw any hydrants of that construction with a wooden case placed around them substantially as shown in said board model; if so, where and when.

A. On Woodbridge street, in the city of Detroit, during my em-

ployment with Flower Brothers. I saw them also in other parts of the city when taken up for repairs.

27 Q. What is the wooden box, used in that relation to the hydrant, for?

(Objected to as not referring to the New York structure prior to the date of Bailey's original patent; therefore immaterial, and not in the nature of evidence in reply.)

A. To protect the waste outlet.

28 Q. Please compare "Exhibit New York Hydrant-Box" with "Exhibit Bailey Hydrant," and state how you find the case upon the hydrant to compare with that box as you find it exhibited in its relation to the New York hydrant by "Exhibit Board Model New York Hydrant."

A. I find they do not compare at all. The "Exhibit Bailey Hydrant" has a tight-fitting, or rather a close-fitting, jacket of iron surrounding it, and encompassing and enclosing the base of the hydrant at all parts; in other words, forming a slip connection
714 between the base of the hydrant and the hydrant proper; whereas in the "Exhibit Board Model New York Hydrant" there is merely a box surrounding the hydrant, and touching it slightly at the top, resting on the supply-pipe in one spot only, and forming no sort of a connection with the hydrant and its base.

29 Q. How do the two structures before referred to compare in points as to protection of the hydrant from dirt, &c.?

A. I have said previously the box, "Exhibit New York Hydrant-Box," does not form a protection to the hydrant from dirt; whereas the case surrounding the Bailey hydrant, in consequence of its slip-joint connection, does so protect it.

30 Q. You have before given your reasons for this difference, have you not?

A. I have.

31 Q. Where, and in reference to what structure?

A. Relative to the "Exhibit Pendry Model" when placed around "Exhibit Defendants' Model."

32 Q. A witness in Boston, called for the defendants, in referring to these two structures, namely, "Exhibit New York Hydrant-Box" and the casing C, as shown in letters patent No. 6990, says: "In my opinion the two structures referred to are substantially the same, are combined with the hydrant proper in the same way, and operate in the same way and produce the same effect." What is your opinion in these respects?

A. My opinion is they are not identical, neither do they operate the same way, that New York hydrant box merely surrounding the hydrant at a distance from it; whereas the casing C, as shown in letters patent No. 6990 and described in the specification attached thereto, would require me to construct a casing entirely sur-
715 rounding the top of the elbow B, forming a junction between that elbow and the top of the hydrant standard by what is known in mechanics as a slip-joint. The New York hydrant-box does not perform this function of connecting the two portions of the

hydrant together in any way whatever. I think it would be impossible for me to construct a hydrant as called for in the specifications, substituting the "Exhibit New York Hydrant-Box" for the hydrant casing C, and claiming to the purchasers that I had entirely filled their specifications. I say this from a mechanical standpoint.

Adjourned until 2 p. m.

2 O'CLOCK P. M.

33 Q. Supposing it be admitted that the New York hydrant-box, as represented in its relations to the hydrant in and by "Exhibit Board Model New York Hydrant," is a detached case so combined and arranged with the hydrant as to have an end play or vertical motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant, how, then, would the said "Exhibit New York Hydrant-Box" compare with the structure called for in the first claim of letters patent reissue No. 6990?

(Objected to as incompetent, the subject being matter of law for the court.)

A. It would not then compare at all, because it would not fulfill the specifications or drawing attached thereto, in that it does not form a connection between the base B and the hydrant-stock A by that peculiar joint which I have before described.

716 34 Q. Are you familiar with letters patent No. 19206, now before you? If so, how long have you been familiar with the same?

A. I have been familiar with it as long as I have with any other hydrants.

35 Q. This witness in Boston to whom I have referred says: "In the original Bailey patent there is a tube enclosing the hydrant proper to protect it from dirt, which tube has no end play or motion with reference to the hydrant proper, said tube being confined between a projection from the water-main and a bead or flange on the hydrant proper. This same tube, substantially, is found in the Race & Mathews patent of 1858, confined in the same way between a flange on the hydrant proper and a projection from the water-main." Please compare these two patents with each other and state what you find to be the fact in this respect.

A. I find in the Bailey hydrant the straight-jacket C surrounds the stock A; should I make that jacket just as shown in the drawing, I have then filled the specification, whereas in the hydrant shown and specified in letters patent to Race & Mathews No. 19206 I find it specified "the lower end of the upper part A of the case A, which in the other patents before us is termed the stock of the hydrant, is provided with a flange, S, which fits over a flange, T, on the upper end of the jacket E." No matter how much end play this jacket may have, it would not prevent the frost from lifting the

hydrant proper, as the external flange S called for in the specification comes down to the surface of the earth, as shown in the drawing for setting it, by which it would be hove out of its place irrespective of that jacket, which is inside of it, and I take it
717 that it would be impossible for me to so construct this hydrant that it should perform the function of the casing shown in the Bailey patent now before me and yet carry out my specification.

36 Q. Please examine "Exhibit Race, Mathews & Co. Lithograph," and at the same time "Exhibit Board Model Race & Mathews Old-Style Hydrant," and having reference to the following letter-press statements upon the said lithograph: "Third. The frost cannot heave the hydrants, as the outside case E is detached and has room to play up and down two inches, thus accommodating itself to the ground without disturbing the hydrant or breaking the connection." If hydrants are thus constructed what, in your opinion, would be the effect as to the action of the frost, notwithstanding the said end play of two inches upon the hydrant?

A. If the hydrants were constructed as shown in this lithograph and in the model they would break just as readily with the frost, or, rather, the heaving action of the earth by the frost, as if this casing were not given end play, as the earth takes hold of the hydrant proper under this flange, thereby entirely nullifying the rising action of the case.

37 Q. Please examine letters patent No. 96959 and compare the drawing of the same with letters patent No. 6990, and state how you find them to agree or differ substantially.

A. I find they don't differ; they substantially agree.

38 Q. Please compare those two with the drawing of letters patent reissue No. 10462, and state how you find that to agree or differ with the others.

(Objected to as immaterial and also as inadmissible, not being proper evidence in reply.)

718 A. They do not differ materially one from the other, the small difference shown in the drawing being insignificant in point of fact.

39 Q. Please compare "Exhibit Bailey Partial Plan" with the said drawings, and state how you find them to agree or differ, substantially, so far as the representations of the outside casing is concerned.

(Objected to as inadmissible and incompetent, no evidence being taken by defendants in respect to said "Exhibit Bailey Partial Plan" and the Race & Mathews 1869 patent and Bailey reissue, together with the "Exhibit Bailey Partial Plan," being all introduced in evidence by the plaintiffs in support of the bill, and any further evidence called for by this question not being properly in reply.)

A. So far as the representation of the outside casing is concerned they are substantially the same.

40 Q. Please examine "Exhibit Bailey Diary Sketch," and state what you find that to be a sketch of.

(Objected to as inadmissible and incompetent, the said sketch being part of the plaintiffs' evidence-in-chief, no reference being made to the same by the defendants' evidence, and the subject forming no proper part of evidence in reply.)

A. A sketch of the Bailey hydrant.

41 Q. From that sketch would persons skilled in the art be enabled to construct a hydrant having the two features of the Bailey hydrant, namely, the cylinder-valve and the outside or loose casing?

(Same objections and also as leading.)

A. They would.

42 Q. Have you examined "Exhibit Race & Mathews Hydrant" and "Exhibit Board Model Race & Mathews New-Style Hydrant?"

719 A. I have.

43 Q. How does that hydrant compare in structure, so far as the loose case is concerned, with the Bailey hydrant?

A. It is practically the same.

44 Q. The witness in Boston, to whom I have before referred, has said substantially that the clack-valve in the Bailey hydrant cannot be used and operated in combination with the puppet-valve used in the Race & Mathews hydrant and exhibited in "Exhibit Defendants' Model." What have you to say in regard to that?

A. He has made an incorrect statement, then, because I have made such valves in large numbers, and used them in conjunction with the puppet-valve, and the hydrants so fitted are still in use in large numbers, and are giving good satisfaction.

45 Q. Please examine "Exhibit Clack-Valve," and state whether or not that is the article to which you have referred in your last preceding answer.

A. Yes, made from my drawings.

46 Q. Please examine the paper now shown you and state what the same represents.

(Objected to as new matter, not forming any part of proper evidence in reply.)

A. A fire-hydrant, manufactured by James Flower & Brothers, of Detroit, from my designs, which shows the clack-valve for the waste and the position in which I place it, also showing its mode of operation. I took the design of this valve from the Bailey hydrant, as I considered it a most admirable arrangement.

(Plaintiff's counsel offered the said paper in evidence, marked "Exhibit Clack-Valve Combination," as illustrative of the last two preceding answers of the witness.)

720 (Same objection to the Exhibit. Counsel for defendants interposes a further objection that the representations con-

tained in interrogatory 44, in respect to the substance of Mr. Renwick's testimony, are incorrect and misleading.)

47 Q. So far as the frost-case is concerned, suppose that you place in the Bailey hydrant the valve arrangements which are in the Race & Mathews hydrant; what difference would it make in the action of the frost-case and its functions as a loose case around the hydrant-tube to protect it from dirt, etc., whether by the action of frost or otherwise?

A. It would make no difference in the external appearance of the hydrant or casing or functions thereof as set forth.

48 Q. Supposing you place the valve arrangements in the Bailey hydrant in "Exhibit Race & Mathews Hydrant," what difference would it make in the action of the frost-case and its functions as a loose case around the hydrant-tube to protect it from dirt, etc., whether by the action of frost or otherwise?

A. It would make no difference.

49 Q. Please examine the "Exhibit Niagara Manufacturing Co.'s Lithograph," and compare the outside casing shown thereon with the casing on "Exhibit Race & Mathews Hydrant," and state how you find them to agree or differ.

A. They agree in every respect, except that the casing shown in the lithograph has been extended on the top, to conform with the ornamentation on the stock of the hydrant; the functions are exactly the same.

50 Q. Mr. Renwick says in his testimony in Boston "in the Bailey reissue an alternative way of supporting the bottom of the frost-jacket or casing is suggested. In the drawings the connec-
721 tion is by means of a socket on the bottom of the casing resting upon a sleeve or branch projecting upwards from the main; but in the reissue there is this phraseology."

Adjourned until 9 o'clock, Monday, July 14.

MONDAY, *July* 14—9 a. m.

WILLIAM A. PENDRY, continued.

"It will be observed that the casing C loosely rests upon the main B or upon a branch projecting upward from the same. Now, these words, 'loosely resting upon the main,' describe the way in which the New York box rests upon the main, and certainly so enlarge the claim that it would not be necessary that the case should have the the peculiar socket connections shown in the drawings in order to infringe the claim."

Please examine letters patent No. 6990 and state what your construction would be as to this alleged departure from the drawings of the patent, or whether you agree or differ with the witness in his construction thereof, and your reasons for the same.

A. I do not agree with the defendants' witness, as it reads "it will be observed." This word observed carries me back to the only place of observation, which is the drawing attached to the specifications. I find on looking at the drawing that the word "loosely" merely

refers to the casing resting on the upward projection of the hydrant base in such a manner that it is not rigidly attached, and were I to allow such a broad understanding of the word loosely as to take in an extended base or truncated cone like the casing of the New York hydrant referred to I should think it very absurd to try to make any one believe that that casing was like the drawing. By
722 placing that construction upon the word "loosely" to that portion of the hydrant casing I would have to adopt the same construction to the word in other portions of the specifications, which says "said casing extends upward and fits loosely about the plug or hydrant at the portion A," which by the drawing is the top of this casing. I should therefore be able to make it in the form of an inverted cone, with any sized top to it that I liked to put to it, or with the same diameter of top and straight-sided like a barrel. But I do not think that that would fill the specifications, as it would not be like the drawing which gives me the construction intended and forms part of the specification.

Cross-examination:

51 C. Q. Have you ever before testified in any patent suit?

A. Yes, sir.

52 C. Q. In how many such suits, if more than one?

A. In one.

53 C. Q. Did you testify therein as an expert, to give opinions upon questions involving the examination and comparison of things described and shown in letters patent, or simply as a witness to matters of fact within your knowledge?

A. I was called as an expert. Different patents were given to me, and I was asked in respect to them.

54 C. Q. What was the subject-matter of that suit, and was it pending in court or before an examiner? By subject-matter I mean the class of machinery involved.

A. My examination — before a commissioner relative to a case pending in the Massachusetts court at Boston, the case being The Detroit Lubricator Company *versus* The Seibert Oil Company *et al.* The subject-matter was the sight-feed in oil-cups.

723 55 C. Q. The New York hydrant-box, when in position surrounding the hydrant, as represented in "Exhibit Board Model New York Hydrant," is a detached casing, is it not?

A. Yes.

56 C. Q. When the earth surrounding such detached casing is frozen, the freezing of that earth cannot derange or disturb the hydrant proper, can it?

A. It does do it.

57 C. Q. How?

A. The cold strikes through the case to the dirt contained inside of it, which fastens the case and hydrant together, lifting both.

58 C. Q. Then the freezing of the earth surrounding such detached casing as the New York hydrant-box, does lift the casing, does it?

A. I have never known these cases to lift, and I don't see how they can lift.

59 C. Q. What, then, do you mean by your answer to cross-interrogatory 57?

A. I mean that if it is allowed that this frost-case would lift, which I do not believe, they being full of dirt as they usually are, the whole thing would be bound to lift together.

60 C. Q. Well, taking your belief to be as you now state it, what is your opinion as to whether the earth surrounding such detached casing as this New York hydrant-box can, when frozen, derange or disturb the hydrant proper?

A. The frost-case can't raise, and should it not raise it would not raise and disturb the hydrant; but what does disturb the hydrant is the swelling of the earth by frost contained inside that case, and I think nullifies the case or the use to which it is intended to be applied.

724 61 C. Q. Now, suppose such New York hydrant-box to be newly placed in position around the hydrant, as represented by "Exhibit Board Model New York Hydrant," and the earth surrounding such detached casing to be frozen before any dirt, substantially, had got inside of that casing, would the freezing of such earth derange or disturb the hydrant proper?

A. No.

62 C. Q. Did you ever examine the interior of any New York hydrant-box set around a hydrant, as represented in "Exhibit Board Model New York Hydrant," in the city of New York?

A. Yes; I have seen them here in Detroit in the same way.

(Answer objected to by defendants' counsel as irresponsive.)

63 C. Q. I asked you whether you have ever made such examination in the city of New York. Hear the last preceding question read again, and answer it responsively.

(Examiner reads to the witness cross-interrogatory 62.)

A. I never was in the city of New York.

64 C. Q. Now, when you say that you have seen any similar structure in the city of Detroit, do you mean that you have ever known a hydrant to be provided with a flange like that represented in "Exhibit Board Model New York Hydrant," at or near the ground base of the same, and a hydrant-box to be set around it, like "Exhibit New York Hydrant-Box," with its top fitting around such flange, all substantially as shown by that board model exhibit, and in the city of Detroit?

725 A. There used to be one near our shop. There were others also in the city of Detroit, but I could not designate their positions. I noticed different makes of hydrants, because of being engaged in their manufacture, but did not pay particular attention to their situation in the city streets.

65 C. Q. Where was that hydrant situated to which you last referred?

A. It was on Woodbridge street, within, I should judge, two blocks east of our shop.

66 C. Q. When you say "our shop," to what do you refer?

A. James Flower & Brothers'.

67 C. Q. Is that hydrant and its wooden casing still in existence, and when did you last see it?

A. It is not in existence that I know of. I cannot place the date of seeing it, but it was about the time we first commenced the manufacture of hydrants. It was replaced by a Mathews hydrant, to the best of my belief.

68 C. Q. How did you ascertain what was inside of that wooden casing—between it and the hydrant proper?

A. By observation.

69 C. Q. What do you mean by that? Did you have opportunity to peep down into the top of it while it was set, or could you see four or five feet under ground, or could you look through the flange on the hydrant?

A. The dirt was removed from around the hydrant, so that they could get the hydrant out, and this was the reason the Flower Brothers afterwards made hydrants with the bolts coming to the surface to prevent this very digging. By this I mean that it was this
726 hydrant which caused the consultation between myself and Mr. James Flower, of which the hydrants we afterwards manufactured was the outcome.

70 C. Q. Do you mean that you saw that hydrant with the wooden casing taken out?

A. Partly. I was present during a portion of the operation.

71 C. Q. It was taken out at that time, was it?

A. Yes, sir.

72 C. Q. How was the wooden casing removed at that time?

A. That casing was all to pieces when I saw it removed.

73 C. Q. Do you mean that the iron hoops had been taken off and the staves all separated and lying around loose?

A. I mean that the staves were all together in a pile. I couldn't say at this late date about the hoops being rusted off, but I suspect that they were rusted off.

74 C. Q. Then you did not see this case at the time that the digging around it was completed and when it was taken out and the staves all put in a pile, did you?

A. I saw it directly the digging was completed, after the staves had been laid on the pile.

75 C. Q. How did you ascertain what was inside of this casing before the staves of which it was composed had been taken out and laid in a pile?

A. It was the removal of the staves that revealed the internal arrangement. The earth was hard around the hydrant above the tops of the bolts, showing the shape of the casing, with some of the rotten wood stuck to it, and the workmen had to break away the earth around the hydrant stock to get at the bolts, so that they could unscrew them, and it required a good deal
727 of pounding work to do it. I met Mr. Flower at his foundry,

and I told him to go up and look at the hydrant, as I did not see why the bolts fastening a hydrant should not come to the surface. He acquiesced with me in that. Whether he went to look at the hydrant himself or not I can't say. I recollect he did say, "That is about the way they all are, Will, and I think there is lots of room for improvement." He also spoke about the waste of the hydrant at that very time working up the dirt, and he then told me that lots of fires in this city had taken full head because the hydrants were frozen up, as the water wouldn't leak away out of the stock.

(All that part of the answer beginning "I met Mr. Flower——" objected to as irresponsive, inadmissible, and incompetent.")

76 C. Q. The bolts you refer to in this hydrant were at the lower end of the stock of the hydrant proper, and were used to attach the hydrant proper to branch of the water-main, were they?

A. They were.

77 C. Q. Now, how much higher than the bottom of the stock of the hydrant proper was this earth which had got inside of the casing at the lower end?

A. It was over the tops of the bolts.

78 C. Q. So you have said before, but I want to know how high above the bottom of the stock of the hydrant proper this earth had got. Can't you tell about how many inches?

A. It would be about sixteen inches from the bottom of the stock of the hydrant proper; it was over the bolts and waste, whatever height that was.

79 C. Q. How much above the bottom of the wooden casing was the top of this earth which had got inside?

728 A. The wooden casing rests on the elbow, and whatever height the top of the bolts and waste is above that bottom is the height of the dirt; such measures, I presume, could be got yet definitely.

80 C. Q. Do you know how long that wooden casing had been set around that hydrant before the time it was taken up on the occasion you have referred to?

A. No.

81 C. Q. Did such casing extend up over the top of the hydrant in a manner similar to the box of the old Bartholomew hydrant?

A. I think it did.

82 C. Q. Then there was no flange upon the hydrant below the nozzle, fitting the interior of such hydrant-box, was there?

A. There was a flange upon the hydrant below the nozzle and you can see the style of hydrant in "Exhibit Ayres' Circular," to which I refer; in point of fact it was an Ayres hydrant.

83 C. Q. But that flange did not fit the interior of the box, did it?

A. I can't say definitely that it did fit it; if it did not, the one next above it did.

84 C. Q. What do you mean by the one next above it?

A. The one next above the nozzle.

85 C. Q. At the extreme top of the hydrant?

A. No, the flange next above the nozzle.

86 C. Q. Was the whole in the box through which the nozzle projected an oblong one like that in "Exhibit Box Old Bartholomew Hydrant?"

A. It was not elongated as large in proportion as that is.

87 C. Q. But it was elongated some, was it?

729 A. I couldn't say. My attention was more drawn to the base of the hydrant in consequence of the dirt of which I have before spoken.

88 C. Q. The whole box was of the form represented by "Exhibit Box Old Bartholomew Hydrant," was it not?

A. The box was an inverted cone.

89 C. Q. Do you mean an inverted cone—that is, with its base uppermost?

A. The word inverted was an error of mine there.

90 C. Q. It was really a pyramidal box, was it not—that is to say, the frustum of a pyramid, with the smaller end above the top of the hydrant, and the larger end on the elbow of water-main branch?

A. No, sir; pyramidal would be square, and the boxes were round.

91 C. Q. Your education as a mechanical engineer, and particularly what you learned in geometry in the course of your elementary education, which you mentioned in your former deposition, has taught you that a pyramid must have four sides, and those of equal area, forming a square base; is it so?

A. No; I wish to correct the word "pyramidal" there, as given to me, and use the words "frustum of a cone" instead, because it gives to me the best representation of what I want to get at; that is the reason I have used it all the way through.

92 C. Q. Is or is not "Exhibit Box Old Bartholomew Hydrant" the frustum of a pyramid, properly and geometrically speaking?

A. The term used is "frustum of a cone," for that shape.

93 C. Q. Do you deny that "Exhibit Box Old Bartholomew Hydrant" is the frustum of a pyramid, properly and geometrically speaking?

730 A. I have always been taught to call it the frustum of a cone.

94 C. Q. Did you ever study conic sections?

A. I studied everything that was necessary to my profession while I was a young man.

(Answer objected to as irresponsive.)

95 C. Q. Last preceding question repeated.

A. Conic sections are included in geometry.

96 C. Q. Can't you say whether you have studied them or not?

A. I said so inferentially.

97 C. Q. Is not the section of a cone made by a plane perpendicular to its axis a circle, and is not the section of "Exhibit Box Old Bartholomew Hydrant" made by a plane perpendicular to its axis a polygon?

A. It is a polygon around the outside; the staves on the inside are worked hollow to make them a practical circle, the outside being left polygonal to save dollars and cents.

98 C. Q. Do you mean to say that you are describing "Exhibit Box Old Bartholomew Hydrant" in your last preceding answer?

A. No, sir; I was describing one like the New York hydrant casing, and was the shape to which I thought you referred; I am sorry I did not understand the question properly.

Adjourned until 2 o'clock p. m.

99 C. Q. Of how many staves was the box which housed this Woodbridge street Ayres hydrant composed, as well as you remember?

A. About nine, I should think.

100 C. Q. What was the diameter of that box at its top, above the hydrant, and what its diameter at its bottom?

731 A. It would probably be about twelve inches at its top, and one and a half times as large at the bottom—about 18 inches.

101 C. Q. About what was the diameter of the top of the Ayres hydrant proper, which was covered by this box?

A. About twelve inches, so as to fit.

102 C. Q. Is it your opinion that the structure represented by "Exhibit Box Old Bartholomew Hyrant," when used as a housing for a hydrant and completely enclosing it, is substantially the same as the structure "Exhibit New York Hydrant-Box" when fitted to a hydrant such as and in the manner represented by "Exhibit Board Model New York Hydrant?"

A. Yes.

103 C. Q. And was it by reason of this opinion that you testified, in your direct examination and in the early part of your cross-examination, that the Woodbridge street hydrant with its housing was substantially the same as the structure represented by "Exhibit New York Hydrant?" I refer to your answers to interrogatories 21 and 22 and to cross-interrogatory 64.

A. Yes.

104 C. Q. Do you intend to be understood that in your opinion the bead upon the hydrant proper, described and shown in the Bailey reissue No. 6990, has no function to perform and is merely ornamental?

A. It is merely ornamental and has no function to perform.

105 C. Q. Suppose that bead to be entirely removed from the hydrant described and shown in reissue No. 6990, and suppose the frost-case C to be hove by frost until its bottom was above the

732 top of the projection upon the main B, upon which it was originally socketed; in that position would there be in combination with the hydrant a detached and surrounding casing C, said casing adapted to have an independent up and down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbance of the hydrant?

A. I think the combination then would be all broken up. If the hydrant was set in that position by the men I think they would have got back to the old-style hydrant with the box around it, and done away with the utility of the case.

106 C. Q. What is there in the structure represented and described in this reissue No. 6990 to prevent the casing from being hove into the position where you say the combination would be all broken up?

A. There is nothing on the hydrant to prevent it from rising completely out of place if such a thing were to occur. The greatest height to which a frost-case has been known to rise by frost, so far as I have been able to learn, where actual measures were taken was one inch and three-quarters.

107 C. Q. Does not the bead upon the hydrant proper of the structure shown in reissue No. 6990 offer a positive limit to the upward movement of the casing?

A. After the casing has risen to that height it would.

108 C. Q. Then does it not perform the function of limiting the upward movement of that casing?

A. It would if the casing should raise as high as that.

733 109 C. Q. And wherever such bead is put it prevents the casing from rising higher, does it not?

A. Yes.

110 C. Q. Did you ever see a hydrant specifically like that shown in "Exhibit Race, Mathews & Co. Lithograph," and represented by "Exhibit Board Model Race & Mathews Old-Style Hydrant?" I refer more particularly to the feature of the overhanging flange which covers and receives the top of the casing.

A. Judging from the exterior of this lithograph, I have seen such hydrants in Boston, but not to examine them.

111 C. Q. And you have never, I presume, made a personal observation as to the behavior of such a hydrant under the action of frost; is it so?

A. It is.

112 C. Q. Refer to the "Exhibit Clack-Valve Combination," which you have introduced in evidence, and state whether the clack waste-valve therein represented has its opening and seat in the hydrant proper or in the bottom of the water-main.

A. It is just in the bottom of the stand-pipe; it could not be used in the bottom of the water-main with this valve.

113 C. Q. By the stand-pipe you mean the stock of the hydrant proper, do you not?

A. Yes.

114 C. Q. Does that clack-valve of the "Exhibit Clack-Valve Combination" lie within the seat of the main valve or outside of it?

A. Close above it.

115 C. Q. But not within it?

A. I could not put it inside that valve.

734 116 C. Q. Now, does not the clack waste-valve of the Bailey hydrant have its opening and seat in the bottom of the water-main, and does it not lie within the seat of the main valve?

A. It lies within the seat of the main valve in the bottom of the elbow. With relation to the seats of the valves, they both lie the same practically, the water not impinging upon the waste-valve until after it has passed the seats of the main valves in both cases.

117 C. Q. In the sentence contained in the specification of reissue No. 6990, "Said casing extends upward and fits loosely about the plug or hydrant at the portion A," what significance do you think the word "fits" has?

A. By reading this specification unattended by any drawing the word "fits" of itself would admit of almost any construction.

118 C. Q. I did not ask you to limit yourself by excluding the drawing. I simply asked you what the word "fits" meant in the sentence quoted from that specification; can you not give a definite answer?

A. Embracing the top of the hydrant more or less tightly.

119 C. Q. And if the casing there had considerable space between it and the hydrant the case would not fit the hydrant, would it, either loosely or otherwise?

A. If it had considerable space around the hydrant I suppose there would be no fit to it.

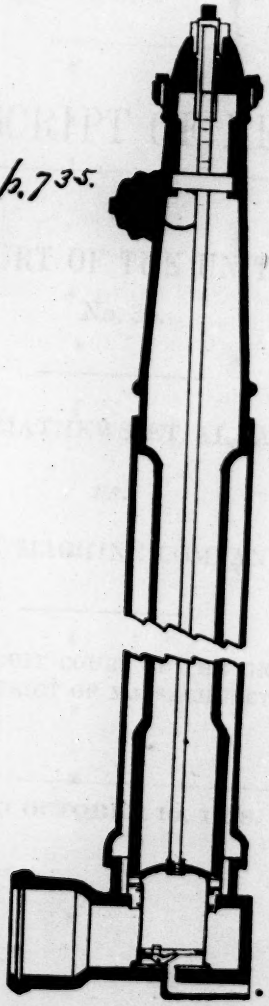
WM. A. PENDRY, *M. E.*,
Mem. Am. Inst. Mech'l Eng.

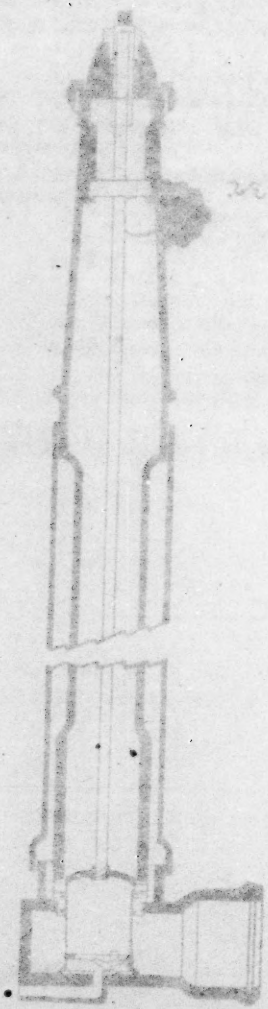
Mr. George L. Roberts, of counsel for defendants, at request of plaintiffs' counsel, admits that he is employed by R. D. Wood & Co., of Philadelphia, manufacturers of the hydrants for the use of which the city of Detroit is charged with infringement in the bill of complaint, to represent the defendants in this cause as their counsel.

(Here follows diagram marked p. 735.)

"*Exhibit Drawing Bailey Hydrant.*"

No. 494
Flower dal
v
Detroit dal.
} p. 735.





736 & 737 "EXHIBIT RECORD MATHEWS *vs.* BOSTON MACHINE CO."

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

No. 35.

SAMUEL R. C. MATHEWS ET AL., APPELLANTS,

vs.

THE BOSTON MACHINE COMPANY ET AL.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MASSACHUSETTS.

FILED OCTOBER 10, 1878.

738 & 739 SUPREME COURT OF THE UNITED STATES.

No. 246.

SAMUEL R. C. MATHEWS ET AL., APPELLANTS,

vs.

THE BOSTON MACHINE COMPANY ET AL.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MASSACHUSETTS.

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741 UNITED STATES OF AMERICA, *Massachusetts District*, } *ss*:

At a circuit court of the United States for the first circuit, begun and holden at Boston, within and for the district of Massachusetts, on Tuesday, the fifteenth day of May, in the year of our Lord one thousand eight hundred and seventy-seven, before the Honorable George F. Shepley, circuit judge.

SAMUEL R. C. MATHEWS *et al.*, Complainants,
v.
THE BOSTON MACHINE COMPANY *et al.*, Defendants. } In Equity.

The bill of complaint in this cause was filed in the clerk's office on the twenty-eighth day of January, A. D. 1873, and was duly entered at the October term of this court, A. D. 1872, and is in the words and figures following, namely:

Bill of Complaint.

To the honorable the judges of the circuit court of the United States in and for the district of Massachusetts:

S. R. C. Mathews and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, trading as R. D. Wood & Company, all of Philadelphia, in the State of Pennsylvania, and citizens of said State, bring this bill against the Boston Machine Company and William E. Coffin, president; W. H. Hart, treasurer, and Charles Carr, superintendent, of said company, all of Boston, in the State of Massachusetts, and citizens of said State.

And thereupon your orators complain any say that on or before the twenty-sixth day of January, 1858, one Washburn Race and the said S. R. C. Mathews were jointly the true, original, and first inventors or discoverers of a certain new and useful improvement in hydrants, not known or used by others before their invention or discovery thereof, and not at the time of their application for letters patent of the United States therefor in public use or on sale with their consent or allowance.

And your orators further show unto your honors that the said Washburn Race and S. R. C. Mathews, so being the inventors of said improvement, and being citizens of the United States aforesaid, made application to the proper department of the Government of the United States for letters patent therefor, in accordance with the then existing laws of Congress, and having duly complied in all respects with the conditions and requisitions of said laws, on the twenty-sixth day of January, 1858, letters patent of the United States, signed, sealed, and executed in due form of law, for their invention or discovery, were issued to them, whereby there was secured to them, their heirs or assigns, for the term of fourteen years from the twenty-sixth day of January, 1858, the full and exclusive right of making, using, and vending to others to be used, the said improvement, as specified and set forth in said letters patent now on record in the Patent Office of the United States.

And your orators further show unto your honors that the said Washburn Race and S. R. C. Mathews having, for good and lawful cause, surrendered said last-mentioned letters patent to the Commissioner of Patents, and having made due application therefor, and having in all things complied with the acts of Congress in such
742 cases made and provided, on the eighteenth day of July, 1871, new letters patent, with an amended specification for the same invention, were granted to the said S. R. C. Mathews, as their assignee, for the residue of said term of fourteen years, which said last-mentioned letters patent were issued in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents, and bearing date the day and year last aforesaid.

And your orators further show unto your honors that an amended description or specification of the aforesaid improvement was given in the schedule to the said reissued letters patent annexed, accompanied by certain drawings, referred to in said amended schedule and forming part of said reissued letters patent. That the said reissued letters patent, and the said specification thereto annexed, were duly recorded in the Patent Office.

And your orators further show unto your honors that the said Washburn Race and S. R. C. Mathews having, under the laws of Congress in such cases made and provided, made application for an extension for seven years of the term of the aforesaid letters patent, and having in all things complied with the conditions and requisitions of said laws, did obtain an extension of seven years from the twenty-sixth day of January, 1872, of the term of said letters patent, and a certificate of such extension was attached to the said reissued letters patent, which certificate was duly recorded in the Patent Office.

And your orators further show unto your honors that the said Washburn Race and S. R. C. Mathews having, for good and lawful cause, surrendered said last-mentioned reissued and extended letters patent to the Commissioner of Patents, and having made due application therefor, and having in all things complied with the acts of Congress in such case made and provided, on the thirtieth day of April, 1872, new letters patent, with an amended specification, for the same inventions, were granted to the said S. R. C. Mathews, as their assignee, for the residue of said extented term of seven years, which said last-mentioned letters patent were issued in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, and bearing date the day and year last aforesaid, as by the said last-mentioned letters patent, or a duly authenticated copy thereof, in court to be produced, will appear.

And your orators further show that an amended description or specification of the aforesaid improvement was given in the schedue to the said reissued and extended letters patent annexed, accompanied by certain drawings, referred to in said amended schedule, and forming part of said reissued and extended letters patent; that the said reissued and extended letters patent and the said specification

thereto annexed (which, or an exemplified copy of which your orators will produce, as your honors may direct), were duly recorded in the Patent Office.

And thereupon, further, your orators complain and say that on or before the sixteenth day of November, 1869, the said Washburn Race and S. R. C. Mathews were jointly the true, original, and first inventors or discoverers of a certain new and useful improvement in hydrants, not known or used by others before their invention or discovery thereof, and not at the time of their application for letters patent of the United States therefor in public use or on sale with their consent or allowance.

And your orators further show unto your honors the said Washburn Race and S. R. C. Mathews, so being the inventors of
743 said improvement, and being citizens of the United States aforesaid, made application to the proper department of the Government of the United States for letters patent therefor, in accordance with the then existing laws of Congress; and having duly complied in all respects with the conditions and requisitions of said laws, on the sixteenth day of November, 1869, letters patent of the United States, signed, sealed, and executed in due form of law for their invention or discovery, were issued to the said S. R. C. Mathews as their assignee, whereby there was secured to their said assignee, his executors, administrators, or assigns, for the term of seventeen years from the sixteenth day of November, 1869, the full and exclusive right of making, using, and vending to others to be used, the said improvement, as specified and set forth in said letters patent, now on record in the Patent Office of the United States, which, or an exemplified copy of which, you orators will produce as your honors may direct.

And your orators further show unto your honors that on or about the twenty-fourth day of August, 1872, the said S. R. C. Mathews, by an assignment in writing of that date, sold, assigned, and transferred unto the said Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood an undivided one-half of the entire right, title, and interest in and to said several hereinabove-recited letters patent and inventions, which said assignment was duly recorded in the Patent Office of the United States, as by said assignment or a duly authenticated copy thereof, and the certificate of such recording thereto annexed, ready in court to be produced, will fully and at large appear.

And your orators further show unto your honors that said several inventions have been and are of great practical use and benefit to your orators, and that they have applied the said improvements to large and extensive use, and that the public and the users of said improvements have acknowledged and acquiesced in the value of said inventions and the aforesaid rights of your orators under said several letters patent, and that your orators have been, and, but for the infringment hereinafter complained of, would still be, in the undisturbed possession, use, and enjoyment of the exclusive privileges secured by the said several letters patent, and in receipt of the profits of the same.

And your orators further show unto you honors, as they are informed and believe, that the said defendants hereinafter named, well knowing all the facts hereinbefore set forth, but contriving to injure your orators, and to deprive them of the benefits and advantages which might and otherwise would accrue to them from said invention and letters patent, have been and now are wrongfully and unlawfully constructing and using hydrants having and containing the said several patented improvements, or some parts thereof, substantially the same in construction and operation as in the said several letters patent mentioned, the exclusive right and privilege to make and use which, and vend the same to others to be used, are thus by law vested in your orators.

But so it is, may it please your honors, that the said defendants, as your orators are informed and believe, without the license of your orators, against their will and in violation of their rights, have made and used, and intend to continue to still make and use, the said improvements within the district of Massachusetts, all of which is in violation of the said several letters patent and assignments.

To the end, therefore, that the defendants may, if they can, show reason why your orators should not have the relief hereby prayed, and that they make a full disclosure and discovery of all
744 the matters aforesaid, and upon their several corporal oaths, and according to the best and utmost of their knowledge, remembrance, information, and belief, full, true, direct, and perfect answer make to such of the several interrogatories hereinafter numbered and set forth, as by the note hereunder written they are required to answer—that is to say:

I. Whether the said several original reissued and extended letters patent were granted, issued, and assigned as hereinabove mentioned?

II. Whether the said defendants have, or either, and which of them, has at any time, and if so, when and where, and during what period of time, made, constructed, sold, or used any, and if so, how many, hydrants substantially similar in any, and, if so, in what, respects to the hydrants described and claimed in the said several letters patent above mentioned, and at what profit have the same been so made, constructed, sold, or used?

III. Whether the hydrants made, constructed, sold, or used by the said defendants, or by either, and which of them, differ in construction, mode of operation, or otherwise, in any, and if so, in what, substantial and material respect from the hydrants described in said several letters patent, and if so, describe minutely and in detail all such differences.

And now, to the end that the defendants may be compelled to account for any pay over the profits thus unlawfully derived from the violation of the rights of your orators as above, together with the damages which your orators have thereby sustained, and may be restrained from any further violation of said rights, your orators pray that your honors may grant a writ of injunction restraining the defendants from any further construction or sale or use in any

manner of said patented improvements, or any part thereof, in violation of the rights of your orators as aforesaid, until the final hearing of this cause, and thereafter perpetually; and that the hydrants now in possession or use of the said defendants may be destroyed or delivered up to your orators for that purpose; and your orators pray for such other relief as the equity of the case may require, and to your honors may seem meet.

May it please your honors to grant unto your orators not only a writ of injuntion conformable to the prayer of this bill, but also a writ of subpœna of the United States of America, directed to the said The Boston Machine Company, and William E. Coffin, president; W. H. Hart, treasurer; and Charles Carr, superintendent, of said company, and command them to appear and answer unto this bill of complaint, and to abide and perform such order and decree in the premises as to the court shall seem meet and be required by the principles of equity and good conscience.

S. R. C. MATHEWS.
RICHARD WOOD,
EDW. R. WOOD, AND
GEORGE WOOD,
By RANDOLPH WOOD.
RANDOLPH WOOD.
WALTER WOOD.

CHARLES HOWSON,
Of Counsel with Complainants.
GEORGE L. ROBERTS,
Complainants' Solicitor.

(The defendants are required to answer each of the foregoing interrogatories numbered one to three, inclusive.)

745 UNITED STATES OF AMERICA, }
State of Pennsylvania, } *ss:*

On the thirteenth day of November, A. D. 1872, before the subscriber came S. R. C. Mathews, one of the complainants in the foregoing bill named, who, being duly sworn, says that, so far as the statements therein contained are within his own knowledge, they are true, and so far as they are derived from the information of others he verily believes them to be true; and he further says that he verily believes the said Washburn Race and S. R. C. Mathews, in said bill named, to be jointly the true, original, and first inventors of the new and useful improvements in hydrants which are described in the said several letters patent granted as mentioned in the foregoing bill; and your deponent verily believes that the title of the said complainants, as set forth in said bill, is true.

GRIER HIBLER,
U. S. Commissioner.

Answer.

UNITED STATES OF AMERICA, }
State of Pennsylvania, } *ss:*

On the third day of December, A. D. 1872, before the subscriber came Randolph Wood and Walter Wood, two of the complainants in the foregoing bill named, who, being duly affirmed, say that, so far as the statements therein contained are within their own knowledge, they are true, and so far as they are derived from the information of others they verily believe them to be true; and they further say that they verily believe the said Washburn Race and S. R. C. Mathews, in said bill named, to be jointly the true, original, and first inventors of the new and useful improvements in hydrants which are described in the said several letters patent granted as mentioned in the foregoing bill; and your deponents verily believe the title of the said complainants, as set forth in said bill, is true.

GRIER HIBLER,
U. S. Commissioner.

The cause was thence continued to the May term of this court, A. D. 1873, when, to wit, May 26th, A. D. 1873, the following answer was filed, namely:

Answer.

The Boston Machine Company and William E. Coffin, its president, W. H. Hart, its treasurer, and Charles Carr, its superintendent, made joint and several answer to the bill of complaint of S. R. C. Mathews and others, complainants, as follows, not waiving any objection to said bill:

1. The defendants admit, upon information and belief, that letters patent of the United States, dated January 26, 1858, were granted and issued to Washburn Race and S. R. C. Mathews, in said bill mentioned, for an improvement in hydrants, as stated in said bill. But the defendants, on information and belief, deny that said letters patent were lawfully so granted and issued, or that improvement had not been in public use or on sale with the consent and allowance of said Race and Mathews for more than two years before the
746 application for said patent, as alleged in said bill, or that the said Race and Mathews were the original and first inventors of the improvement described in said letters patent, or that they obtained any exclusive right and liberty by virtue of said letters patent.

2. The defendants, upon information and belief, admit that the said letters patent were surrendered and reissued July 18, 1871, as alleged in said bill, but deny that said reissue was for good and lawful cause, or that it was for the same invention described or shown in the said original letters patent, or intended to be secured thereby; wherefore and because the said Race and Mathews were, as aforesaid, not the original and first inventors of the said improvement in hydrants, they submit that the said reissue, dated July 18, 1871, was wholly void.

3. The defendants, upon information and belief, admit that said reissue patent was extended for the further term of seven years, as alleged in said bill, but deny that the said extension was valid, because they deny that the said original patent, or the said reissue patent of July 18, 1871, was valid, as hereinbefore more particularly appears.

4. The defendants, upon information and belief, admit that the said extended letters patent were reissued April 30, 1872, as alleged in said bill, but deny that the said reissue was for good and lawful cause, and deny that it was for the same invention described or shown in the said original letters patent or intended to be secured thereby; wherefore and because the said Race and Mathews were not the original and first inventors of the said improvement in hydrants, and because of the hereinbefore alleged invalidity of the said extension, they submit that the said reissue of April 30, 1872, was and is wholly void.

5. The defendants give notice that, in support of their said defence that the said Race and Mathews were not the original and first inventors of the said improvement in hydrants, they will prove that the said improvement, or a substantial and material part thereof, claimed in said reissue of April 30, 1872, as new, was, before the alleged invention thereof by the said Race and Mathews, patented, described, and shown in the following letters patent of the United States, viz.: Patent granted to S. P. Ayers (assignee), June 9, 1857; patent granted to Perrine and Boyle, June 23, 1857, and was in use in the city of New York by the mayor, aldermen, and commonalty of the city of New York, and in the city of St. Louis by the government of that city.

6. The defendants, on information and belief, admit that letters patent of the United States, dated Nov. 16, 1869, were granted and issued to the said Mathews, as assignee of the said Race and Mathews, for a certain other alleged improvement in hydrants, as stated in the said bill, but deny that said letters patent were lawfully so granted and issued, or that said improvement had not been in public use or on sale with the consent and allowance of the said Race and Mathews *formerly* than two years before the application of said patent, as alleged in said bill, or that the said Race and Mathews were the original and first inventors of the said improvement, or that they obtained any exclusive right and liberty by virtue of said letters patent.

7. The defendants are not informed, save by the said bill, and cannot say whether or not the said Mathews made the assignment on or about Aug. 24, 1872, to Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, as alleged in the said bill, and leave the complainants to make proof thereof as they may be advised.

8. The defendants give notice that, in support of their said defence that the said Race and Mathews were not the original and first inventors of the said improvement patented Nov. 16, 1869, they
747 will prove that the same, in a material and substantial part thereof, claimed in said patent as new, was, before the alleged

invention thereof by the said Race and Mathews, patented, described, and shown in the letters patent and in use by the persons and corporations mentioned in the fifth clause of this answer, and was also patented, described, and shown in the letters patent of the United States, dated July 21, 1868, granted to Zebulon E. Coffin.

9. The defendants, on information and belief, deny that the public, or the users of the said alleged improvements, have acknowledged and acquiesced in the said pretended rights of the complainants.

10. The defendants deny that they have infringed the said letters patent, or either of them, as charged in the said bill.

11. The defendants submit that they are not bound to answer as to the hydrants which they have made and sold, further than as they have hereinbefore answered, and without this, that anything in the said bill contained, not herein sufficiently confessed, traversed, or avoided, is true. They pray to be hence dismissed with their costs.

BOSTON MACHINE CO.,
By WM. E. COFFIN, *Pres't.*
WM. E. COFFIN,
Pres't B. M. Co.
WM. H. HART,
Treas. B. M. Co.
CHARLES CARR,
Sup't B. M. Co.

UNITED STATES OF AMERICA,
State and District of Massachusetts, } ss:

At Boston, in said district, this twenty-sixth day of May, A. D. 1873, personally appeared The Boston Machine Company, by Wm. E. Coffin, its president; Wm. E. Coffin, president; Wm. H. Hart, treasurer, and Charles Carr, superintendent, of said company, and severally made oath that they respectively hold the offices in said company set against their respective names; that they have read the foregoing answer by them subscribed, and understand the contents thereof, and that the matters and things therein stated as of their own knowledge are true, and as far as stated upon information and belief that they verily believe the same to be true.

Before me—
[SEAL.] N. AUSTIN PARKS,
Notary Public.

On the twenty-sixth day of June, A. D. 1873, the following replication was filed, namely:

Replication.

The replication of S. R. C. Mathews and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, complainants, to the answer of The Boston Machine Company and others, respondents in the above-entitled cause.

These repliants, saving and reserving unto themselves all advan-

tage of exception to the insufficiencies of the said answer, for replication thereunto say that they will aver and prove their bill of complaint in this cause to be true, certain, and sufficient in the law to be answered unto, and that the said answer is uncertain, untrue, and insufficient to be replied unto, without this, that any other matter in the said answer contained material or effectual in
748 law to be replied unto, confessed and avoided, traversed or denied, is true; all of which these repliants are and will be ready to aver and prove as this honorable court shall direct; and pray as in and by their said bill they have already prayed.

By their solicitor, GEO. L. ROBERTS.

This cause was thence continued from term to term to the May term of this court, A. D. 1876, when, to wit, June 16th, A. D. 1876, the following supplemental bill of complaint was filed, namely:

Supplemental Bill of Complaint.

S. R. C. Mathews and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, trading as R. D. Wood & Co., all of Philadelphia, in the State of Pennsylvania, and citizens of said State, bring this their supplemental bill of complaint against the Boston Machine Company and William E. Coffin, president; William H. Hart, treasurer, and Charles Carr, superintendent, of said company, all of Boston, in the State of Massachusetts, and citizens of said State.

And thereupon your orators complain and say that on the twenty-eighth day of January, in the year 1873, they filed in this court their bill of complaint against the said defendants, wherein they prayed for discovery, account, payment of profits and damages, and an injunction to restrain the said defendants from infringing letters patent of the United States numbered 4887 of reissues, and dated the thirtieth day of April, 1872; and also letters patent of the United States numbered 96959, and dated the sixteenth day of November, 1869, each for "improvement in hydrants," as therein described and claimed; and further prayed for such other relief as the equity of the case might require.

And your orators further show that on or about the twenty-first day of July, 1868, letters patent of the United States bearing that date and numbered 80143 were issued to the said Boston Machine Company, as the assignee of one Zebulon E. Coffin, for an "improvement in hydrants," therein set forth; that thereafter, and since the filing of your orators' said original bill of complaint, to wit, on or about the tenth day of May, 1873, the said Zebulon E. Coffin, at the instance and request of the said Boston Machine Company, and on its behalf, filed in the Patent Office of the United States his petition to the Commissioner of Patents, representing that he believed the said letters patent No. 80143 to be inoperative and invalid, by reason of an insufficient or defective specification, and praying that he might be allowed to surrender the same, and that new letters patent might issue to the said Boston Machine Company upon an

amended specification therewith presented; and that thereafter, to wit, on or about the twenty-seventh day of January, 1874, letters patent of the United States bearing that date, and numbered 5745 of reissues, and purporting to be granted upon the same invention as had been set forth in the said original letters patent No. 80143, were issued from the Patent Office to the said Boston Machine Company, as the sole owner thereof, by virtue of assignment from the said Zebulon E. Coffin, for the residue of the term of seventeen years from the twenty-first day of July, 1868.

And your orators further show that in the specification of the said letters patent, reissue No. 5745, the said Zebulon E. Coffin set forth and claimed as his invention a frost-jacket substantially such
749 as is therein described, closely surrounding the hydrant above ground and below the hose-plug, and extending to the elbow or other casting to which the lower part of the hydrant is secured, said jacket being attached neither to the elbow nor the hydrant, and therefore having the capacity of being lifted by frost without disturbing the hydrant or the elbow or the joints, and also preventing cold air from dropping down into the space between the hydrant and the jacket, as by reference to the said letters patent, reissue No. 5745, and to the first clause of claim therein contained, will more fully appear.

And your orators further show that the said Zebulon E. Coffin was not the original and first inventor of so much of what is set forth in the specification of the said reissue No. 5745 as is referred to in the first clause of claim therein, but that the same and every substantial and material part thereof was first originated and invented by one Washburn Race and your orator, S. R. C. Mathews, and by them described and claimed in letters patent of the United States numbered 96959, granted to them on the 16th day of November, 1869, and subsequently assigned to your orators, as recited in the said original bill of complaint.

And your orators further show that the said letters patent, reissue No. 5745, were unjustly and unlawfully obtained by the said Zebulon E. Coffin and the said Boston Machine Company as his assignee, for that which had been already properly and lawfully secured to your orators in and by virtue of the letters patent aforesaid, No. 96959; yet that, nevertheless, the said defendant company and the other defendants aforesaid, as its officers and managing agents, claim to be working under the said reissue No. 5745, and set up the same against the rights of your orators under the said letters patent No. 96959.

And your orators further show that the said letters patent, reissue No. 5745, so far as concerns the subject-matter of the first clause of claim therein, are invalid and void, and conflict and interfere with the said letters patent No. 96959, and the exclusive rights and privileges granted and secured thereby to your orators as aforesaid.

Wherefore your orators further pray that the said letters patent, reissue No. 5745, so granted to the defendant company, may be adjudged and declared by decree of this honorable court to be invalid and void as to the entire subject-matter of the first clause of claim

contained in the specification thereof, and that the said defendants and each of them may be restrained by an injunction issuing out of this honorable court from asserting or attempting to exercise any right or privilege under the said reissue No. 5745 in respect to the subject-matter of the first claim thereof; and from instituting or prosecuting any suit or suits under the said reissue No. 5745 founded upon the first claim thereof; and from granting, assigning, or transferring, or attempting to grant, assign, or transfer, to any other person or persons whomsoever, any right, title, or interest in, to, or under the said reissue No. 5745 in respect to the subject-matter of the said first claim thereof; and from doing any other act or thing in opposition to the claims and rights of your orators in the premises.

And to this end may it please your honors to grant unto your orators not only a writ of injunction conformable to the prayer of this bill, but also a subpœna directed to the said Boston Machine Company and William E. Coffin, president; William H. Hart, treasurer, and Charles Carr, superintendent, of the said company, commanding them to appear and answer unto this supplemental
750 bill, and to do and to receive what to your honors shall seem meet in the premises.

S. R. C. MATHEWS,
RICHARD WOOD,
EDWARD H. WOOD,
GEORGE WOOD,
By WALTER WOOD,
WALTER WOOD.

GEORGE L. ROBERTS & BROS.,
Solicitors and of Counsel for Complainants.

SOUTHERN DISTRICT OF NEW YORK:

On this seventh day of June, 1876, before me personally appeared the above-named S. R. C. Mathews and made oath, and the above-named Walter Wood, and affirmed that the following supplemental bill by them subscribed is true so far as stated upon their own knowledge, and that so far as stated upon information and belief they believe the same to be true.

JOHN A. OSBORN,
U. S. Commissioner, S. D. N. Y.

On the same June 16th, A. D. 1876, the following answer to supplemental bill was filed, namely:

Answer to Supplemental Bill.

The answer of The Boston Machine Company, respondents, to the supplemental bill of complaint of S. R. C. Mathews and others, complainants.

This defendant, reserving all right of objection to the said supplemental bill, for answer thereto, says:

1. This defendant admits that the complainants filed their original bill Jan. 28, 1873, and prayed relief therein, as alleged in the supplemental bill.

2. This defendant admits that it obtained July 21, 1868, as assignee of Zebulon E. Coffin, letters patent for an improvement in hydrants, and that the said patent was, after the filing of the original bill, and upon a petition filed on or about May 10, 1873, reissued on or about Jan. 27, 1874, to this defendant, all as alleged in the supplemental bill.

3. This defendant admits that in said reissue there is set forth and claimed as the invention of said Coffin what the supplemental bill alleges in that behalf, being the subject of the first claim of said reissue.

4. This defendant, on information and belief, denies that the said Coffin was not the original and first inventor of the said subject of first claim, or that any substantial or material part thereof was originated or invented by Washburn Race or S. R. C. Mathews, as in the supplemental bill alleged, before the invention thereof by said Coffin, and denies that the same was unjustly or unlawfully patented by the said Coffin, or by this defendant as his assignee, and, admitting that they claim to be be working under said Coffin reissue, and set up the same against the pretended rights of the complainants as aforesaid, submit that they have lawful right so to do.

751 5. And this defendant, not admitting that the said Coffin reissue conflicts and interferes with the said letters patent of the complainants No. 96959, denies that said reissue is invalid or void.

6. And this defendant submits that the complainants are not entitled to the relief prayed in said supplemental bill, and, without admitting that anything therein charged and not herein sufficiently admitted or denied is true, prays to be hence dismissed with its costs.

BOSTON MACHINE CO.,
By WM. H. HART, *Treas.*

UNITED STATES OF AMERICA,
State and District of Massachusetts, } *ss:*

At Boston, in said district, this fourteenth day of June, A. D. 1876, personally appeared William H. Hart, the treasurer of the said Boston Machine Company, by whom the foregoing answer is signed, in its behalf, and made oath that he is such treasurer, and has knowledge of its affiairs, and that he has read the foregoing answer by him subscribed, and understands the contents thereof, and so far as stated of his own knowledge they are true, and so far as they are stated as of his information and belief that he verily believes the same to be true.

Before me—

[SEAL.] J. HENRY TAYLOR,
Notary Public.

On the same June 16th, A. D. 1876, the following replication was filed, namely:

Replication.

The replication of S. R. C. Mathews and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, trading as R. D. Wood & Co., complainants, to the answer of The Boston Machine Company, respondents, to the supplemental bill of complaint in the above-entitled cause.

These repliants, saving and reserving unto themselves all advantage of exception to the insufficiencies of the said answer, for replication thereunto say that they will aver and prove their supplemental bill of complaint in this cause to be true, certain, and sufficient in the law to be answered unto, and that the said answer thereto is uncertain, untrue, and insufficient to be replied unto, without this, that any other matter in the said answer contained material or effectual in law to be replied unto, confessed and avoided, traversed or denied, is true; all of which these repliants are and will be ready to aver and prove as this honorable court shall direct, and pray as in and by their said supplemental bill they have already prayed.

By their solicitors, GEO. L. ROBERTS & BROS.

On the same June 16th, A. D., 1876, the following agreement was filed, namely:

Agreement.

It is agreed in the above-entitled cause that the complainants' supplemental bill, the defendants' answer thereto, and
752 & 753 the complainants' replication to the same may be filed, and all the evidence introduced on behalf of the respective parties hereto may be treated and used at final hearing in the same manner and with the same effect as if taken after issue joined upon the said supplemental bill.

GEO. L. ROBERTS & BROS.,
Complainants' Solicitors and of Counsel.
BROWNE & HOLMES,
Defendants' Solicitors and of Counsel.

Decree. Appeal.

This cause was thence continued to the October term of this court, A. D. 1876, when, publication of the testimony having duly passed, the said cause was set down for hearing and fully heard by the court.

This cause was thence continued under advisement to this present term, when, to wit, October 5th, 1877, the following decree is entered, namely:

Final Decree.

This cause came on to be heard at the October term of this court upon the pleadings and proofs, and was argued by counsel for the respective parties, and thence was continued under advisement to this present term; and now, to wit, Oct. 5, 1877, it is ordered, adjudged, and decreed that the bill of complaint in this cause be, and the same is hereby, dismissed with costs for the defendants, taxed at —.

From this decree the said complainants in open court claim an appeal to the Supreme Court of the United States, and give good and sufficient security that they will prosecute their said appeal to effect and answer all damages and costs if they fail to make their plea good, and said appeal is allowed accordingly.

A true record.

Attest: JOHN G. STETSON, *Clerk.*

The following is the evidence used in the hearing of said cause before said circuit court, namely:

Evidence for Complainants,

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, N. Austin Parks, special examiner.

FEBRUARY 9, 1875.

Present: Geo. L. Roberts, Esq., counsel for complainants; Causten Browne, Esq, counsel for defendants.

Complainants' counsel here puts in evidence a certified copy of letters patent, reissue No. 4887, dated April 30, 1872, granted to S. R. C. Mathews as assignee of himself and Washburn Race, for "improvement in hydrants," which is marked Complainants' Exhibit 1.

Also certified copy of letters patent No. 96959, dated November 16, 1869, granted to S. R. C. Mathews as assignee of himself and Washburn Race, for "improvement in hydrants," which is marked Complainants' Exhibit 2.

755 Also certified copy of an agreement made on the twenty-fourth day of August, 1872, by and between S. R. C. Mathews and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, recorded in the United States Patent Office November 7, 1872, and marked Complainants' Exhibit 3.

It is stipulated and agreed between the counsel for the respective parties that the above exhibits, certified from the records of the Patent Office, may be substituted for and treated as the originals for the purposes of this case.

Counsel for complainants also introduces in evidence a hydrant, which is marked Complainants Exhibit 4, and counsel for defendants admits that, between the dates of the complainants' letters patent, Exhibits 1 and 2, and the date of the filing of the bill of com-

plaint in this case, the defendants manufactured and sold the said hydrant and others of the same construction and operation.

Attest: N. AUSTIN PARKS,
Special Examiner.

COMPLAINANTS' EXHIBIT 1. N. A. P., Special Examiner.

Letters Patent of the United States, reissue No. 4887, granted April 30, 1872, to WASHBURN RACE, of Lockport, N. Y., and S. R. C. MATHEWS, of Philadelphia, Penna., said Race assignor to said Mathews.

Improvement in Hydrants.

Specification forming part of Letters Patent No. 19206, dated January 26, 1858; reissue No. 4475, dated July 18, 1871; extended seven years; reissue No. 4887, dated April 30, 1872.

To all whom it may concern:

Be it known that Washburn Race, formerly of Seneca Falls, New York, but now of the city of Rockport, of the county of Niagara and State of New York, and S. R. C. Mathews, now of the city of Philadelphia, in the State of Pennsylvania, formerly of Seneca Falls aforesaid, did invest certain new and useful improvements in fire hydrants or plugs, and the entire right thereof having been assigned to me, the said S. R. C. Mathews, I do hereby declare the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification:

(Here follows diagram marked page 13.)

(Here follows diagram marked p. 754.)

Figure 1 is a central vertical section of said improved hydrant; Fig. 2, a horizontal section in line *x x;* Fig. 3, a plan of the annular yoke and waste-valve; Fig. 4, a view of the device by which the valve-rod is operated; Fig. 5, a view of the wrench.

Like letters indicate corresponding parts in all the figures.

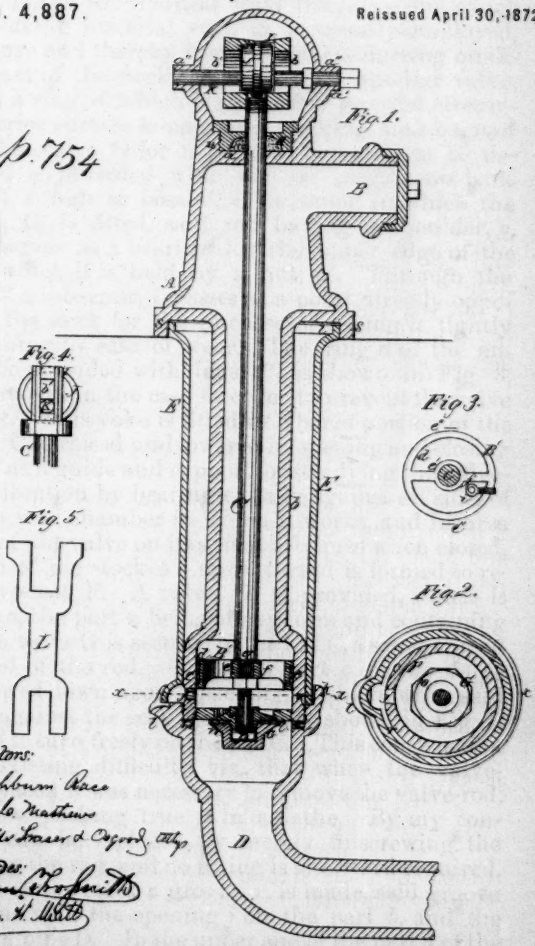
The invention consists, first, in the employment of a loose case or jacket around the body of the hydrant, whereby both the hydrant and case or the hydrant alone may be detached and removed, or withdrawn, as hereinafter set forth; second, in the employment of a dead-air or non-conducting chamber around the stock of the hydrant, below the surface of the ground, by means of the inclosing jacket; third, in the use of a guide or yoke for steadying the valve-rod and centering the valve; fourth, in the manner of con-
756 structing the valve for facilitating the removal and replacing of the packing without removing the valve-rod; fifth, in the construction and arrangement of the main valve and a waste-valve, whereby the latter is opened as the induction-pipe is closed, and *vice versa.*

In the drawing A indicates the hydrant, the upper portion *a* being of any appropriate form, and provided with one or more nozzles, B,

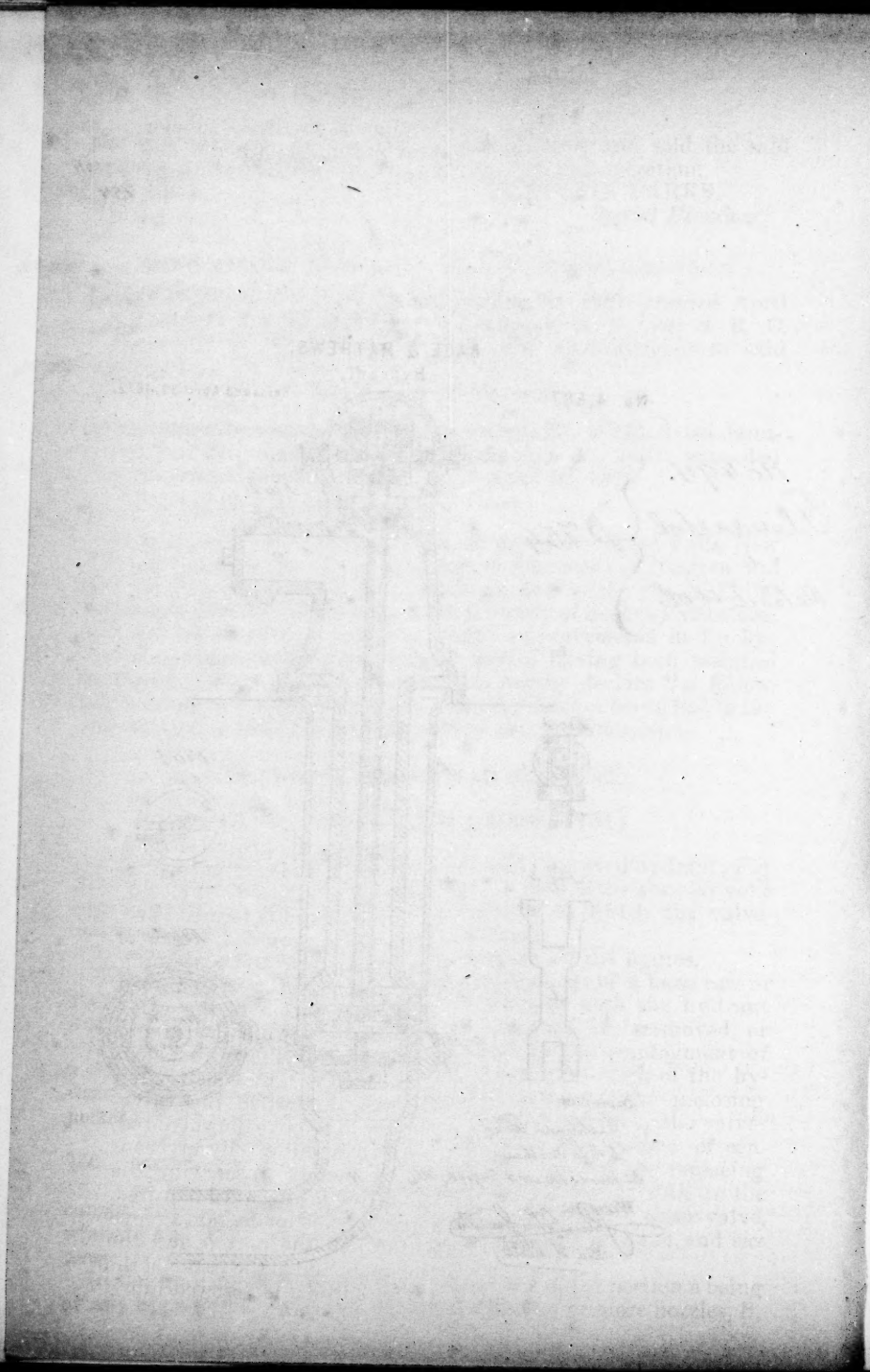
RACE & MATHEWS.
Hydrant.

No. 4,887. Reissued April 30, 1872.

No 494
Flower et al
v
Detroit et al
p. 754



Inventors:
Washburn Race
S. R. C. Mathews
Per Burke Fraser & Osgood, Attys.
Witnesses:
Jas. C. Trofsmith
Geo. H. Mott



and the lower part or stock *b* being preferably of smaller diameter and extending below the surface of the ground, and attached to the pipe D by a screw-joint or in any other suitable manner. Outside the stock *b* is situated a case or jacket, E, which forms an independent piece in itself, inclosing the stock of the hydrant and protecting it from the packing of earth and from the effects of frost. This jacket extends to the surface of the ground or a little above, where it may form a loose connection with the part A of the hydrant, so that the latter, with the stock *b*, may be detached from the main and removed without disturbing the jacket. The annular chamber of confined air between the jacket and stock forms a superior non-conductor for the protection of the hydrant from freezing—one which is better than any packing material such as is usually employed, which absorbs moisture and thereby loses its non-conducting qualities. In the lower part of the stock *b* is situated an annular valve, B′. This consists of a ring, *d*, which is preferably grooved circumferentially in its exterior surface to receive a packing, *e*, to be used in connection with the valve G for a purpose presently to be described. The ring *d* is provided with one or more cross-bars, *f*, connecting it with a hub or boss, *e′*, at its center, in which the lower part of a rod, C, is fitted, said rod having a shoulder, *g*, formed on it, which serves as a bearing for the upper edge of the hub or boss, against which it is held by a nut, *h′*. Through the ring *d* of the valve B′ a set-screw, *i*, passes at a point directly opposite an opening, *j*, in the stock for the purpose of setting it tightly against the waste-opening in case of wear. The ring *d* of the annular valve B′ may be provided with lugs, *e″*, as shown in Fig. 3, said lugs fitting in grooves in the case in order to prevent the valve from turning casually. This yoke is fitted in a bored portion of the stock, and, as the rod C is raised and lowered in opening and closing the valve G, it serves as a guide and support for steadying the valve-rod and preventing vibration by bearing equally against all sides of the interior of the stock or chamber in which it works, and insures the perfect centering of the valve on its seat at all times when closed. Within the lower part of the stock *b* a screw-thread is formed to receive an annular valve-seat, F. A valve, G, is provided, which is formed of the parts *n o*, the part *n* being of cup form and containing a nut, *p*, by which the valve G is secured to the rod C, a screw-thread being on the lower end of the rod. The other part *o* of the valve is a cap, which is screwed down upon a packing, *q*, which, when said valve is closed, bears against the seat F, as plainly shown in Fig. 1. The valve G is allowed to turn freely on the rod C. This construction obviates a heretofore-existing difficulty, viz., that when the valve-packing had to be replaced it was necessary to remove the valve-rod, and after putting in new packing true it in a lathe. By my construction the packing can be replaced by merely unscrewing the part *n* without removing the rod, and no fitting is afterward required. Around the lower end of the stock a groove, *r*, is made, said groove being in the same plane with the opening *j* on the part *b*, and the spout or nozzle *l* on the pipe D. In the upper end of the part *a* of the case A there is screwed a cup, H. The cup H is screwed into a

757 recess, *u*, in which packing, *v*, is placed, the above parts forming a stuffing-box. To the upper end of the rod C a yoke, I, is attached, and a cam or eccentric, J, is fitted within the yoke. The cam J is placed upon a shaft, K, which has its bearings in a flanch, *a''*, on the upper part *a*. One end of the shaft K projects beyond the edge of the flanch and has a square formed on it to receive a wrench, L, shown in Fig. 5. The sides of the yoke I are slotted vertically, as shown at *b'*, Fig. 4, the shaft K passing through said slots. The yoke I is covered by a cap, M, the lower edge of which is provided with a flanch, *a''*, which is fitted to the flanch *a'* of the case and secured to it by screw-bolts. The upper end of the cup H has grooves or recesses made in it to receive one end of the wrench L for the purpose of turning the cup.

The operation is as follows: By applying the wrench L to the square on the shaft K the cam or eccentric J may be turned without raising or moving the cap M, and the rod C may be raised or lowered thereby. When the rod C is raised the valve G bears against its seat F, and the water from the main is prevented from passing into the case A of the hydrant, and when the valve G is closed the valve B' is above the opening *j*, and therefore the water within the case A may pass out through the opening *j* into groove *r*, and out at spout or nozzle *l*. When the rod C is lowered the valve G opens and the annular valve B' passes over the opening *j*, closing the same, while the water from the main passes up through the seat F, through the case A, and out through nozzle B. Thus it will be seen that when the water is admitted into the case the escape-passage *j* is closed, and when the water is shut off the said passage *j* is opened.

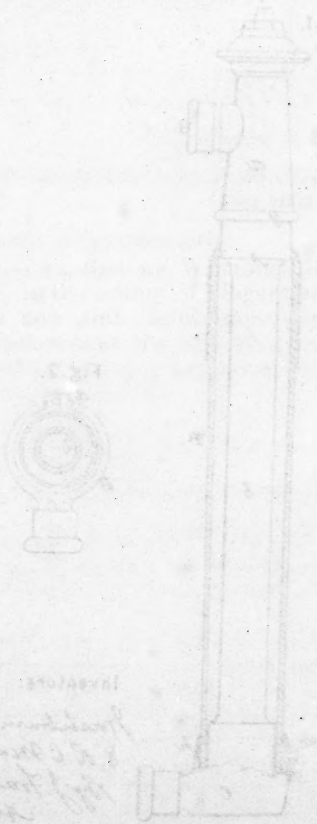
A great advantage of the case or jacket E results from its being free or independent of the other parts, so that if any of the parts require repairs the hydrant can be removed from place by simply disconnecting from the main pipe D and without disturbing the case E or the earth around it; or, if the main pipe itself or its parts, at the connection of the hydrant with it, are deranged, the loose case can be removed with the hydrant, which would not be the case were it to form a solid part of the main. These advantages result from the special use of the detached case or jacket.

I am aware that hydrants have been constructed with a case or extension which forms a fixed part of the main or elbow to facilitate the removal of the hydrant without excavating. Such we do not claim. But I am not aware that a loose or detached case has ever before been used to form a confined air-chamber around the stock, and so that both the hydrant and the case, or the hydrant alone, can be removed; therefore—

What I claim as the invention of the said Washburn Race and myself is—

1. A projecting case or jacket, E, surrounding the body of the hydrant and forming a separate and removable part from the elbow D, substantially as and for the purpose set forth.

2. The independent case or jacket E supported on the arm D of the main pipe at or near the junction of the hydrant-stock therewith, substantially as shown and described.

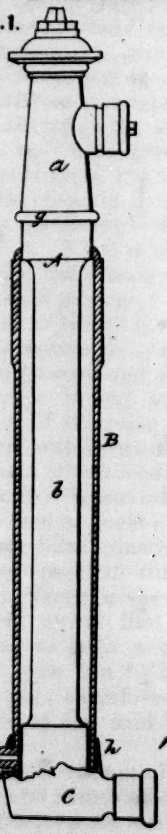


W. Race & S. R. C. Matthews.

Hydrants.

No. 90959. Patented Nov. 16. 1869.

Fig. 1.



No. 4914.
Flower et al.
v.
Detroit et al.
} p. 759

Fig. 2.

Witnesses:

Inventors:

Washburn Race
S. R. C. Matthews.
By J. Fraser & Co
Attys.

3. The annular yoke B′ on the valve-rod C for steadying the rod C and centering the valve G, and also preventing any vibration of said rod or valve when the hydrant is opened, as set forth.

4. The valve G, constructed of the two parts *n o* and packing *q*, in combination with the rod C, substantially as and for the purpose set forth.

758 5. The annular valve B′ and the disk-valve G attached to the rod C, in combination with the escape or leak openings *j*, when arranged to operate as and for the purposes set forth.

S. R. C. MATHEWS.

Witnesses:
OSCAR R. MEYERS.
CHAS. D. CLARK.

COMPLAINANTS' EXHIBIT 2. N. A. P., Special Examiner.

Letters Patent of the United States No. 96959. WASHBURN RACE and S. R. C. MATHEWS, of Lockport, New York, assignors to S. R. C. Mathews, November 16, 1869.

Improvement in Hydrants.

The schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Lockport, in the county of Niagara and State of New York, have invented a new and useful improvement in hydrants; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification:

(Here follows diagram marked page 18.)

(Here follows diagram marked p. 759.)

Figure 1 is a sectional elevation of our improved hydrant.

Figure 2, a horizontal cross-section.

Like letters of reference indicate corresponding parts in both figures.

We obtained a patent, dated January 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and imbedded in the ground.

Our present invention is an improvement upon that, and consists in so forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings—

A indicates the hydrant, the part *a* resting above ground, and the stock *b* being imbedded.

The loose case or jacket B, which surrounds the stock, is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders *g g*, which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply enclosed.

The lower end of the case preferably shuts into a flange, *h*, of the main elbow connection C, and it may be centered to prevent axial turning by a sleeve, *c*, which rests in a groove, *d*.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant.

760 & 761 The heaving by frost is a constant source of trouble and expense in other hydrants, by causing the elbows at the bottom, connecting with the "main," to break, also throwing the hydrant itself out of position. While we remedy this difficulty by giving the desired end play, we, at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

Another great advantage of our invention is that the hydrant can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention, and desire to secure by letters patent, is—

The detached case B, so combined and arranged with hydrant A as to have an end play or vertical motion of several inches, to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
JOHN VAN HORN.
ELLSWORTH ELY.

COMPLAINANTS' EXHIBIT 3. N. A. P., Special Examiner.

THE U. S. PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office.

In testimony whereof I, J. M. Thacher, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this eleventh day of June, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States the ninety-eighth.

[SEAL.] J. M. THACHER,
Acting Commissioner.

Agreement made and entered into this twenty-fourth day of August, A. D. 1872, by and between S. R. C. Mathews, of the city of Philadelphia, Penn., and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, all of the said city, and trading together in said city under the firm style and title of R. D. Wood and Company.

Whereas the said S. R. C. Mathews is the owner of two several letters patent of the United States, as follows, to wit: Letters patent No. 19206, for improvement in hydrants, dated January 26, 1858, reissued July 18, 1871, extended January 26, 1872, reissued April 30, 1872; also letters patent No. 96959, for a hydrant, dated November 16, 1869;

And whereas the said R. D. Wood & Company are desirous of acquiring an interest in and exclusive license under the said several letters patent:

Aug., 1872. 5. Now, these presents witness that, in consideration 762 of the due and proper performance by the said R. D. Wood and Company of the several covenants hereinafter contained to be by them performed, the said S. R. C. Mathews agrees to assign, and hereby does assign, to the said R. D. Wood and Company an undivided one-half of all the right, title, and interest in and to the said several letters patent for, to, and in the whole of the United States; and furthermore agrees to grant, and hereby does grant, to the said R. D. Wood and Company the exclusive right, license, and privilege of making, and vending to others to be used, hydrants made under and in accordance with the said letters patent, said interest hereby assigned and said exclusive license hereby granted to be held and enjoyed by the said R. D. Wood and Company for and during the entire unexpired remainder of the terms of the said several letters patent, unless previously abandoned or revoked under the terms and conditions of these presents.

The said R. D. Wood and Company promise and agree to manufacture and supply the said patented hydrants in

Aug. 4, 1872. 5. quantities sufficient to fill the demand, and they will, at their own sole cost and expense, make or procure all such additional machinery as may be needed to carry on said manufacture, and at their own expense to maintain the same and proper patterns, cores, boxes, and flasks relating to the said patented hydrants in good order.

The expense, however, of obtaining such new patterns as may

be needed shall be borne in equal proportions by the parties hereto, and said new patterns shall be the joint property of said parties.

The said R. D. Wood and Company will pay to the said Mathews, as royalty, one-half of the profits accrued and actually received by them from sales of the said patented hydrants over and above the net cost of manufacture, and, in addition, will pay him the sum of two dollars and fifty cents upon each of the said hydrants sold, which said sum shall be in full for the services and travelling expenses and time of the said Mathews in effecting sales of the said hydrants or pipes for the said R. D. Wood and Company.

Aug., 1872. 5.

The net cost of manufacture of the said hydrants shall be determined and fixed by the parties hereto in each and every January for the ensuing year, and shall be based upon the price of material and labor at the time of settlement, and such cost shall be reckoned at the net cost of labor and material employed in said manufacture, without allowance for manufacturers' profits and profits on melted iron.

To the cost of manufacture, thus ascertained, shall be added one dollar per hydrant for expense of handling and delivery in New York or Philadelphia, and also all commissions or discounts allowed to dealers upon the sale of hydrants, and the profits (of which one-half is to be paid as royalty to the said Mathews, as hereinabove agreed) shall be the surplus remaining over and above the cost of manufacture with the additions.

Aug., 1872. 5.

It is agreed that either of the parties hereto may, by and with the consent of the other, license other parties to manufacture and sell hydrants under the said letters patent, all royalties upon such licenses to be paid to the said R. D. Wood and Company, who shall pay over one-half thereof to the said S. R. C. Mathews.

In case of the death of the said Mathews the said R. D. Wood and Company will pay to his legal representatives as royalty upon the manufacture and sale of the said patented hydrants ten dollars upon each hydrant made and sold by them until the expiry of the term of said extended letters patent of January 26, 1858, and thereafter till the expiry of the term of said letters patent of November 16, 1869, the sum of six dollars on each hydrant made and sold by them, and they will also pay to the legal representatives of said Mathews one-half of all sums actually received by them, the said R. D. Wood and Company, as royalties from any other party or parties licensed to manufacture and sell under the said letters patent.

Aug. 4, 1872. 5. 763

The said R. D. Wood and Company will keep book accounts relating to the manufacture and sale of said patented hydrants, and to royalties received from any other licensee or licensees under said letters patent, which said books shall at all reasonable times be open to the inspection of said Mathews, his legal representatives, or his or their duly authorized agent or agents, and the said R. D. Wood

and Company will account for and pay over to the said Mathews or his legal representatives such sums as by the terms of this agreement may be due to him or them once in each and every year from and after the date hereof.

All expenses necessary for the institution and prosecution of any suits at law or in equity commenced by and with
Aug. 4, 1872. the consent of the said R. D. Wood and Company
5. for infringement of the said letters patent or either of them shall be paid by the said R. D. Wood and Company, and any and all damages or profits which may be recovered and obtained in any such suits shall be applied in the first place to reimbursing to the said R. D. Wood and Company the expenses by them so incurred, the surplus, if any remaining, to be divided equally between the said Mathews and the said R. D. Wood and Company.

In case the said R. D. Wood and Company shall at any time discontinue the manufacture of the said patented hy-
Aug. 4, 1872. drants, or shall fail to comply with the terms and
5. conditions of this agreement, the license herein granted shall be annulled and forever cease and determine, and the interest in said letters patent herein assigned to the said R. D. Wood and Company shall revert to the said Mathews, and the said R. D. Wood and Company shall and will execute a proper instrument of writing reassigning the same; and it shall be lawful and proper for the said Mathews to assign the said letters patent, or any part thereof, or to make any licenses or contracts for the manufacture and sale of the said patented hydrants in his own name and right, and for his own sole benefit as freely and fully as if this agreement and the license and assignment thereon contained had never been made.

In testimony whereof the said S. R. C. Mathews has hereunto set his hand and affixed his seal, and the said Richard
Aug. 4, '72. Wood, Edward R. Wood, George Wood, Randolph
5. Wood, and Walter Wood have hereunto set their hands and affixed their seals, the day and date first above written.

Sealed and delivered in the presence of—

S. R. C. MATHEWS. [L. S.]
RICHARD WOOD. [L. S.]
E. R. WOOD. [L. S.]
GEORGE WOOD. [L. S.]
RANDOLPH WOOD. [L. S.]
WALTER WOOD. [L. S.]

The words "at their own expense to maintain the same and proper" substituted for the words "will purchase such," *sixth and seventh lines, third page.

764 The words "as may exist and be" erased, † ninth line, third

*Fifth and sixth lines, page 21 of this record.

†Seventh line, page 21 of this record, after word "hydrant."

Aug. 4, '72. 5. page, and the word "paid" substituted for the word "advanced," *eighth line, seventh page; previous to execution, †sixth page, "books of account" altered to "book accounts."

JESSE GARRETT.
DAVID McCLURE, JR.

Recorded Nov. 7, 1872. Ex.: J. D.

Deposition of Hervey Waters.

BOSTON, *April* 6, 1875.

Direct examination by GEO. L. ROBERTS, Esq.:

Int. 1. State your name, age, residence, and occupation, and also the nature and extent of your experience in the examination and comparison of machinery and mechanical contrivances.

Ans. Hervey Waters; age, seventy; residence, Boston, Mass.; machinist; I have had an experience of something more than a quarter of a century as expert in the trials of patent causes.

Int. 2. Have you examined the letters patent, reissue No. 4887, dated April 30, 1872, and granted to S. R. C. Mathews, as the assignee of Washburn Race and himself, for improvement in hydrants, and do you understand the construction, operation, and uses of the contrivances therein described? If so, state whether the model now introduced in evidence and marked Complainants' Exhibit 5 is a substantially accurate representation of the same.

Ans. I have examined the patent inquired of and believe I understand what is therein described. I have also examined the model and believe it to be a fair representation of what is described in the patent.

Int. 3. Please refer to the specification and point out the peculiarities of construction of the jacket E therein described, and explain its mode of operation and uses in connection with the rest of the hydrants.

Ans. The patentees in the patent say that their invention consists, "first, in the employment of a loose case or jacket around the body of the hydrant, whereby both the hydrant and case or the hydrant alone may be detached and removed or withdrawn, as hereinafter set forth." The main purpose of this jacket is to protect the hydrant proper from frost in the season of winter, and it has another purpose, which is to enable the hydrant to be detached and withdrawn from the main water-pipe without excavating down to the connection of the hydrant with the pipe for that purpose; and in this connection it should be understood that the valve which admits water to the hydrant must be so far below the surface of the ground as to prevent the frost from reaching down to it in the winter time; and for the purpose of preventing the frost from reaching that point, and also to prevent the frost from acting injuriously upon the hy-

* Twenty-fifth line, page 22 of this record.
† Twelfth line, page 22 of this record.

drant when in use, the jacket serves to enclose a body of air between itself and the hydrant, which is a good non-conductor of heat, provided the air cannot circulate too freely so as to get up around the hydrant above the surface of the ground or outside of it, as the case may be; and in this view it is important that the jacket should fit properly by means of annular joints both at its top and bottom upon projecting parts upon the hydrant
765 proper or other cylindrical parts attached thereto, so that th jacket can go and come lengthwise upon the hydrant without affecting the joints essentially whenever the jacket shall vary its length by varying degrees of temperature, or whenever the same shall happen to the hydrant itself. And in this view this jacket, at its two ends, is a hollow cylinder or annulus, one end fitting into an annulus upon the hydrant and the other end fitting into an annulus upon the elbow of the main pipe, there being an air-space between the jacket and the body of the hydrant, and enclosed therein a body of air to act as a non-conductor. This air-space is referred to in the patent as follows: "Second, in the employment of a dead-air or non-conducting chamber around the stock of the hydrant below the surface of the ground by means of the enclosing jacket;" and I understand this jacket and air-space to be referred to in the 1st and 2d claims of the patent.

Int. 4. Will you now compare the defendants' hydrant, Exhibit 4, with that described in the reissue 4887, and state what substantial features, if any, you find them to have in common as respects the jacket which surrounds the body of the hydrant in each, respectively?

Ans. The defendants' hydrant inquired of has a jacket surrounding the hydrant substantially the same and for the same purpose as was done in the complainants' hydrant, described in the patent under consideration; the joints between the hydrant and the jacket are vertical, annular joints, as they are in the complainants' patent. The defendants' jacket is made in two parts, and afterwards screwed together so as to constitute one part when combined with the hydrant proper, and the jacket surrounds the hydrant at the joint, while in the complainants' contrivance, as described in the patent, the jacket is surrounded by flanches connected with the hydrant at top and bottom; but these are mere formal differences.

Int. 5. Upon what is the jacket supported in each of the two hydrants compared, and where is that support with reference to the junction of the hydrant-stock with the main?

Ans. It is supported perpendicularly on an arm of the main pipe at or near the junction of the hydrant with the pipe.

Int. 6. What is the object of making the defendants' jacket in two parts, and what the practical result of uniting them when the hydrant is set, as respects the enclosed air-chamber?

Ans. I don't know of any particular object for the purposes of the air-chamber merely. I suppose it is made in two parts to enable one to more conveniently get at the bolts for fastening the hydrant to the main pipe; and it is necessary that the jacket should be made continuous from joint to joint for the purposes of the air-

chamber, so that it comes to this, as I understand it, that, for the purposes of the air-chamber, it is immaterial whether the jacket be made in one part or in two, and afterwards connected, but for the purposes of the bolts in connection with the hydrant it is essential that the jacket should be constructed in two parts and then united into one after the hydrant is set.

Int. 7. For the purpose of a clear understanding of the structures referred to, will you state what is meant by the body of the hydrant or the hydrant-stock, or (what I believe you have termed) the hydrant proper, and in this connection point out the means, in each of the two hydrants compared, for attaching the hydrant proper to the main pipe?

Ans. For the purpose of an answer to the question it will be well to consider what a hydrant is and what it is for. It is for fire purposes mainly, as I understand it, and for this purpose it is necessary that the hydrant should be provided with means for attaching thereunto hose for the supply of fire-engines; and for the
766 purpose of such attachments it is necessary that the nozzles upon the hydrant should be above ground, in order that the hose may be conveniently attached thereunto. It is also necessary that between the main pipe and the connection for the hose there should be a valve, which can be conveniently operated by the firemen to admit or prevent the flow of the water through the nozzle as they may desire. And in this climate it is necessary that the valves should be below the reach of frost in winter so as to shut back the water in the main pipe below the frost; therefore it is obvious that the valves should be under ground where the main pipe is, and as these valves sometimes get out of order it is desirable to get at them without being obliged to dig down to them, and therefore in these hydrants the valve is placed at the foot of the hydrant at or about where it is joined to the main pipe; and the connection is so made between the hydrant and the main pipe that it can be made or broken from the surface of the ground above and without digging down for that purpose by passing the hydrant down through the jacket and connecting it at the bottom to the main pipe; this is done in the complainants' contrivance by means of a screw upon the lower end of the hydrant, turning into a corresponding screw upon the elbow of the main, where the joint is packed at a seat so as to be water-tight, and this is accomplished by passing down the hydrant through the jacket and screwing it into the main pipe by turning it around. In the defendants' hydrant the joint at the seat is the same, and the hydrant is passed down through the jacket the same, but it is held to the seat by long hook-bolts, which extend from near the top of the ground to the joints, the hooks taking hold of projections upon the main pipe, and the nuts working down upon projections upon the hydrant near its top so as to be conveniently got at with a wrench and thus draw the joint tight in its seat by means of bolts.

Int. 8. Will you again refer to the reissue 4887 and point out the principal features of construction which characterize the waste-valve B', therein described, and those parts of the hydrant with which it

immediately co-operates, and in this connection explain the uses of such a valve in a hydrant?

Ans. As I have previously described the hydrant and its uses, it will be obvious that after the firemen have shut off the water by means of the valve under ground the hydrant will be full of water from that valve to the nozzle, and it will be obvious that this water must be immediately disposed of or else it will freeze there in this climate in the winter; and it is for getting rid of this water with certainty and immediately that this waste-valve B′ is provided to be operated in the manner described in the patent; and this manner is such that when tha main valve at the bottom is closed the waste-valve is opened with certainty and without any care on the part of the fireman, so that, if the hydrant is properly constructed, the water above the main valve will immediately flow out, whatever the weather may be, and the hydrant be in condition to be used again as occasion may require. The patent says in regard to this valve: "Fifth. In the construction and arrangement of the main valve and the waste-valve, whereby the latter is opened as the induction-pipe is closed, and *vice versa*." The patent afterwards goes on and describes the construction of the two valves and their arrangement in relation to each other, and also describes the means of working the main valve, which working of the main valve also works the waste-valve simultaneously but conversely, so that when the waste-pipe opens the water above the main valve escapes out of the hy-
767 drant into the space between the jacket and the hydrant and out through an opening in the jacket, and reaches down into the soil (below the frost if in the winter). This contrivance I understand to be referred to in the fifth clause of claims of the patent.

Int. 9. Will you compare the waste-valve contained in the defendants' hydrant and the contrivances therein with which it immediately co-operates with the waste-valve and its co-operating devices in the hydrant described in the reissue 4887, and state what substantial likeness or difference you find in their construction and mode of operation?

Ans. In the defendants' hydrant the waste-valve is operated by the same apparatus which operates the main valve, and so it is in the patented contrivance; but in the patented contrivance that apparatus consists of a cam to be operated by a winch in the hands of the fireman, while in the defendants' contrivance it is operated by a screw to be turned by a winch in the hands of the fireman. These two devices are well-known equivalents for each other for a similar purpose. In the complainants' contrivance there is upon the valve-rod a yoke so connected with the valve-rod as to rise and fall with it, and at the outer end of the yoke there is an annulus connected with it, which fills substantially the bore of the hydrant at that point; out through the side of the hydrant and just above the main valve there is a hole so positioned that, when the main valve is closed, the hole is uncovered, but it is covered when the main valve is opened to any considerable extent, this annulus shutting down over the hole like any common sliding water-gate. The patent calls it an annular valve in one place or more, but if it is an

annular valve it is simply because the gate which shuts over the hole is an annulus. In the defendants' hydrant there is a yoke serving the same purpose as the yoke in the complainants' patent, so far as steadying the valve-rod in place is concerned. This yoke in defendants' hydrant is rigidly connected to the hydrant-case, and the rod slides through the yoke; while in the complainants' hydrant the yoke slides with the rod, thus carrying the annulus up and down, which opens and closes the waste. But there is upon the defendants' valve-rod an annular projection, which projection is larger than the valve-rod and substantially fills the bore of the yoke; and from this bore out through the yoke and through the case or shell of the hydrant there is a hole bored for the passage out of the water from the hydrant in the same manner that the water passes out through the hole in the shell of the hydrant in the complainants' contrivance; and this hole in the yoke is so positioned in the defendants' hydrant that when the main valve is closed the annular projection upon the valve-rod has moved away from over the waste-hole just as the annulus upon the ends of the yoke in the complainants' contrivance has moved away from over the hole when the main valve is closed; and when the main valve is open in the defendants' contrivance this annular projection upon the main valve-rod comes down and covers the waste-hole just as the annulus upon the end of the yoke in the complainants' contrivance comes down and covers the waste-hole when the main valve is opened; so that if the valve in the complainants' contrivance for wasting the water is an annular valve then the valve in the defendants' contrivance for the same purpose is an annular valve. There is no material difference between these two devices of the complainants and the defendants in my judgment, such differences as there are between them being merely colorable differences.

Int. 10. Is it desirable, and, if so, why, to close the waste orifice when the main valve is opened?

Ans. It is, for two reasons. One is because it is not desir-
768 able to waste the water; but I think a more important one is because it is desirable not to saturate the earth with more water than is necessary, because such saturation would prevent the ready escape of the water from the jacket of the hydrant after the main valve is closed and the waste-valve open.

Int. 11. You have referred to the mechanical means contained in each of the two hydrants compared for steadying the valve-rod; will you compare them further in respect to this office and also in respect to any further function relating to the centering of the main valve and the prevention of vibration of the valve-rod and main valve when the hydrant is opened, and state whether the specific differences which you find between them for such purposes are substantial or otherwise?

Ans. For all the purposes of steadying and guiding the valve-rod from the shell of the hydrant the two devices are the same; and they are also the same for permitting the passage of the water between the shell of the hydrant and the rod in both cases; because that in both cases the rod is supported from the shell of the hydrant

by a yoke passing from side to side of the bore of the hydrant so as not to essentially impede the passage of the water through the bore of the hydrant. It is obvious that the rod might be equally well, if not better, supported by means of a disk filling the bore of the hydrant; and it is also obvious that such disk might be made to operate the waste in either the complainants' or defendants' hydrant just as they are operated in either; but the disk would be fatal to either the operation of the hydrant or the waste, just the same in one as in the other, because it would close up the passage from the main valve to the nozzles; and therefore the yoke is necessary in both contrivances for steadying the main valve.

Int. 12. Have you examined the letters patent No. 96959, dated November 16, 1869, and granted to S. R. C. Mathews, as the assignee of Washburn Race and himself, "for improvement in hydrants," and do you understand the construction, operation, and uses of the contrivances therein described? And, if so, state whether they are represented with substantial correctness in the model here introduced and marked Complainants' Exhibit 6.

Ans. I have examined the patent inquired of, and understand what is described therein, I believe; and the model produced is substantially what is described in that patent.

Int. 13. Please refer to the specification of this second patent and point out the leading characteristics which distinguish the hydrant-case therein described, and its mode of operation, from that described in the first patent, reissue 4887.

Ans. The differences between the hydrant described in the second patent enquired of and the first are well stated in the second patent. These differences consist in a remodification of the hydrant proper and of the jacket of the hydrant, whereby the hydrant is better enabled to endure the heaving of the earth by frost in cold climates, and also to enable such displacement as may be occasioned by such heaving to be corrected without the necessity of digging up the hydrants, all the other operative parts of such hydrants remaining substantially as they were before. This is accomplised by bringing the upper joint of the hydrant between the jacket and the hydrant proper upon the outside of the hydrant proper, and leaving a space of several inches between the top of the jacket and a shoulder upon the hydrant proper, so that as the earth heaves and pulls up the jacket it may slide upon the hydrant proper without straining
769 the hydrant or opening the joints by means of which the jacket is made to enclose air as a non-conductor, or straining the hydrant proper in its fastenings to the main pipe; and the contrivance is so modified by placing the jacket upon the outside of the hydrant proper at the upper joint that the jacket can be driven down by acting upon the top after it had been pulled up by the frost to its normal position.

Int. 14. Will you now compare the combination of case B and hydrant A, described and shown in this second patent, No. 96959, with the combination of exterior case and hydrant constituting the defendants' structure, Exhibit 4, and say how they agree or differ substantially in construction, operation, and uses?

Ans. They are both alike for all the purposes mentioned in the patent, and referred to in my preceding answer. In defendants' hydrant the lower joint brings the jacket upon the outside of the elbow of the main pipe instead of upon the inside of the flange upon the elbow, as described in the patent, but this does not constitute a substantial difference; in defendants' hydrant the jacket is made in two parts, for the convenience, I suppose, of using the hook-bolts, as described by me in a preceding answer; but these two parts are united into one when the hydrant is complete, by means of screw-bolts, and this is not a substantial difference for the purposes set out in the patent.

Adjourned to 7th inst., at 11 a. m.

April 7, '75, cross-examination declined.

HERVEY WATERS.

Attest: N. AUSTIN PARKS,
Special Examiner.

Evidence for Defendants,

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, John A. Shields, examiner.

NEW YORK, *Sept.* 22, 1875.

Present: Causten Browne, Esq., of counsel for defendants; R. L. Roberts, Esq., of counsel for complainants.

Deposition of Albert Chesebro.

Direct examination by CAUSTEN BROWN, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Albert Chesebro; age, sixty-six years; I reside in Jersey City, New Jersey; and my occupation is that of carpenter.

Int. 2. Did you at any time before the year 1858 make any wooden cases for hydrants for the city of New York?

Ans. Yes, sir. I made them in 1850, '51, '52, and '53, and I think I made some after that, but I am not positive; probably I made them in '54, '55, and '56, but I am not positive about those years.

Int. 3. Who was at that time the foreman of repairs of the water-works department of the city of New York?

Ans. One of them was James D. Keegan. I can give the names of some others if desired.

Int. 4. State generally what these cases were for.

770 Ans. They were set in the ground around the hydrants to protect them from frost.

Int. 5. What kind of wood were they made of?

Ans. I used to make them of one-inch spruce boards; they were made in sections like the staves of a barrel, about four inches wide at the top and a little larger at the bottom. We used to put on a thin iron hoop, one at the upper end and one at the lower end.

Int. 6. About what diameter had these cases at the top and at the bottom, and about what lengths were they made from top to bottom.

Ans. It is so long ago that I can't say positively, but my impression is that they were about twelve inches across at the top on the inside and sixteen inches at the bottom, as near as I can judge. I think they were about four feet long, as a general thing. We made some shorter ones, but they were made to a special order usually.

Int. 7. About how many of these hydrant-cases did you make for the city of New York during the year of 1850 and the years following, down to 1856?

Ans. Well, I should think that I must have made at least five hundred.

Cross-examination by R. L. ROBERTS, Esq., of counsel for complainants:

Cross-int. 8. Do you know how these cases were applied to hydrants? If so, please state.

Ans. I know that they were set over them in the ground, coming up about to the top of the walk—below ground altogether.

Cross-int. 9. With what hydrants were they used, and of whose manufacture?

Ans. I think it was the Ayres hydrant they were using at that time, but I am not positive.

ALBERT CHESEBRO.

Attest: JOHN A. SHIELDS, *Examiner.*

Deposition of James D. Keegan.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is James D. Keegan; age, fifty-three years; residence, 240 West 31st street, New York city; and occupation, foreman of repairs of the water-works of New York city.

Int. 2. Was your occupation the same from 1850 to 1856?

Ans. It was.

Int. 3. And has been so ever since, I suppose?

Ans. Yes, with the exception of two years.

Int. 4. Did Mr. Albert Chesebro, in the years 1850 to 1856, make for the water department of New York city wooden cases to be set around hydrants for protection against frost?

Ans. Yes.

Int. 5. Were any of these wooden cases or frost-jackets applied at that time to hydrants which were under your charge?

Ans. I have no recollection of dates; they have been applying them right straight along, but I can't say anything about the years.

Int. 6. Were any of the wooden cases which were so made for the city by Mr. Chesebro put onto hydrants of the city?

A. Yes, sir.

771 Int. 7. Were these hydrants under your charge that they were put onto?

Ans. They were—that is, in the district that I had charge of.

Int. 8. Were they put onto these hydrants from time to time as Mr. Chesebro supplied them?

Ans. That is what they were made for; yes.

Int. 9. Will you look at the sectional model now produced, marked Defendants' Exhibit A, and state whether that represents the hydrants to which these wooden cases which Mr. Chesebro made were applied?

Ans. That is about the form of the case; yes.

Model put in evidence and marked Defendants' Exhibit A, J. A. S., examiner.

Int. 10. Does the model correctly show the construction of the hydrant body and arrangement of the main valve and valve-rod as it was in those hydrants?

Ans. Yes; I should call that a correct model.

Int. 11. Now, in regard to the wooden pieces at the sides on which the words "wooden staves" are written; do they represent the position of the wooden cases or frost-jackets to which we have referred?

Ans. Yes; I should think that was a very good representation.

Int. 12. How did these wooden jackets or cases operate—I mean what was the effect of the action of the frost?

Ans. I should suppose that they protect the hydrant or casting from the frost taking hold of it.

Int. 13. Would the action of the frost tend to lift the wooden cases?

(Objected to as leading.)

Ans. It does.

Int. 14. When the frost got out of the ground, how were the wooden cases restored to their position?

(Objected to, as the witness has not stated that they were displaced.)

Ans. By taking a hammer or crowbar and pounding them back.

Int. 15. Will you state how these frost-jackets or cases made by Mr. Chesebro and put onto hydrants as you have described operated in practice?

Ans. They done very well as a protection to the hydrants.

Int. 16. You have said that the city has been applying these frost jackets or cases right along. Are they in use in New York now?

Ans. They are.

Int. 17. About how many of them should you say there were in use in New York now?

Ans. Quite a number of them.

Int. 18. More or less than a thousand, should you think?

Ans. All of a thousand, I should think.

Int. 19. Are they on hydrants similar to this one, Exhibit A?

Ans. About as close as you can come to it.

Int. 20. Will you look at the drawing of the Race-Mathews patent reissue, April 30, 1872, and state what, in your opinion, would be necessary to do in order to remove from a hydrant in place in the ground the outside jacket or case which is marked E?

Ans. It appears to me I should have to remove the earth from around it.

Int. 21. All the way down, do you think?

Ans. Yes, sir; I should think so.

Int. 22. Why would you have to do this? Why could you not pull the hydrant-case up out of the ground?

772 Ans. Because the earth would hold it there, it is wedged around it so tightly.

Int. 23. Apart from the wedging of the earth, what would be the effect of the elbow projecting out from the lower end of the case E, as shown on the left-hand side of the patent drawing?

Ans. That has a tendency to keep it in the ground firmly.

Int. 24. How about that part of the case which lies in between the parts K and *e*, as shown on the right-hand part of the drawing; could the case be readily drawn out from between those two parts; and, if not, why not?

Ans. Not after it was any length of time in the ground; rust would hinder it; the parts would rust and become completely wedged, I should think.

Int. 25. You have said that you hammerered down again the wooden frost cases or jackets when they had been pushed up by the frost. Where did you hammer them down to?

Ans. Put them back to the original place where they were before.

Int. 26. When they were down in their place what did the bottom edge of the wooden case or jacket rest upon?

Ans. Nothing but the earth; the front stave rested upon the elbow of the hydrants, as you see it in Exhibit A.

Int. 27. Will you look at the drawing marked Defendants' Exhibit B and states whether, as regards the arrangement of the hydrant body in relation to the case or frost-jacket, you have ever had down in the city of New York hydrants such as are there represented?

Ans. That drawing is pretty close to it.

Int. 28. How early did you have such hydrants in New York city?

Ans. 1843, 1844, along about that time, up to 1847.

Int. 29. As to the arrangement of the hydrant body in relation to the case or frost-jacket you say that this drawing is "pretty close" to what the hydrants were; if you see any difference, state it.

Ans. There is no difference. I understand that the question does not ask in relation to the interior arrangement of the hydrant body.

(Drawing put in evidence and marked Defendants' Exhibit B, J. A. S., examiner.)

Int. 30. In these hydrants could the body of the hydrant be taken

out, leaving the case or frost-jacket in the ground; if so, how was it done?

Ans. Yes; by unscrewing four bolts just above the surface of the ground when we had an iron lever in the form of a wrench by which we took hold of the hydrant head and turned it around, thus unscrewing it from the other end, and then drew it out.

Cross-examination by R. L. ROBERTS, Esq., of counsel for complainants:

Cross-int. 31. Did you have occasion to remove the wooden cases from the hydrants at other times than when it was necessary to remove the body of the hydrant; if so, how do you do it?

Ans. Digging out the earth around the case. We do have occasion when the case rots away to remove them.

Cross-int. 32. Does the shape of the case affect the amount which the frost will lift it?

Ans. It makes a material difference.

Cross-int. 33. How much will one of the wooden cases you have described be lifted from the ground by the frost in the course of a season?

773 Ans. That depends altogether where it is put; in regard to the nature of the soil where it is placed.

Cross-int. 34. What would be the average amount?

Ans. It depends altogether on the nature of the ground it is placed in. In sandy, dry soil you would hardly notice it; still, it is raised a trifle. In wet, heavy, clay soil it raises a couple of inches.

Cross-int. 35. Who manufactured the hydrants around which these cases were put?

Ans. They were manufactured by different parties. Samuel P. Ayers, of New York, made a good many, and they were made by Boston parties; I don't know who.

Cross-int. 36. How did you remove such hydrants as you used the wooden cases with when it became necessary to remove them?

Ans. By digging down to the hydrant bend or bed-plate—whatever you choose to call it—and unscrewing two iron straps that hold it in its place.

Cross-int. 37. You were unable to remove the hydrant, then, as I understand you, without digging away the earth around the case; am I right?

Ans. Yes, sir.

Cross-int. 38. How often did you have to renew those wooden cases?

Ans. We have to renew them every three or four years. It depends on the kind of wood they put in the cases.

Cross-int. 39. Did you ever have occasion practically to use a hydrant constructed like the drawing in the Race-Matthews reissue patent of May 30, 1872, to which your attention has already been drawn?

Ans. Not like this drawing.

Cross-int. 40. Did you ever have occasion to use a hydrant the case of which fitted into a flange on the top of the elbow of the

water-main, or any other flange similar to that marked "K" in the drawing?

Ans. I have.

Cross-int. 41. State when and where.

Ans. I placed one of those hydrants of the Race and Matthews patent in 38th street, between Fifth and Madison avenues, about six years ago, and it is there yet.

Cross-int. 42. Was that the first so constructed with the flange?

Ans. It was, as near as I can recollect. I have put down a good many others since, but I cannot tell you the time.

(The witness' attention being drawn to the drawing of the plaintiffs' patent of November 16, 1869, he says:)

That drawing represents the hydrant I am talking about.

Cross-int. 43. How frequently do you have occasion to remove the cast-iron cases which are used with hydrants?

Ans. Not very often.

Cross-int. 44. On what occasions?

Ans. When the hydrant gets worn out.

Cross-int. 45. Do you have occasion to remove them except when you remove the body of the hydrant itself?

Ans. No, sir.

Cross-int. 46. Who made the hydrants like or similar, as you have testified, to Defendants' Exhibit B?

Ans. They were turned out by the Novelty iron works.

Cross-int. 47. Where were their works?

Ans. Dry Dock and Twelfth streets, New York city.

Cross-int. 48. How long did they manufacture them?

774 Ans. I don't know.

Cross-int. 49. Did they manufacture them during the whole time they were used by you?

Ans. That I know nothing about, except that they were marked "Novelty Iron Works."

Cross-int. 50. What effect did the frost have upon the iron cases of these Novelty hydrants?

Ans. I never knew the frost to have any effect upon them.

Cross-int. 51. Did you ever know one of them to be broken?

Ans. No, sir.

Cross-int. 52. Would not the frost have a tendency to lift the case of those hydrants the same as any other?

Ans. It appears to me that the frost ought to have the same tendency, but I never saw it.

Cross-int. 53. What was the effect of the frost on the hydrants which you used without the wooden case previous to its introduction?

Ans. I never knew, except in one case, in a very severe winter, when the frost got in very deep and snapped the hydrant off.

Cross-int. 54. Was that the only instance you ever knew?

Ans. That is the only instance I ever knew.

Cross-int. 55. How lately have you seen a hydrant constructed like the drawing, Defendants' Exhibit B?

Ans. Not since 1847.

Cross-int. 56. Where was that hydrant?

Ans. Corner Grand and Cannon streets, New York city.

Cross-int. 57. Do you know where the Novelty iron works are at present?

Ans. I don't.

Cross-int. 58. Do you think the action of the frost on the case of a hydrant constructed like Exhibit B would have no injurious effect upon the hydrant?

Ans. That all depends on circumstances whether it would or not.

Cross-int. 59. Please name some when it would.

Ans. If the casing should remain full of the waste water, then the frost would be likely to damage the casing.

Cross-int. 60. Do you think there are no other circumstances under which the frost would have an injurious effect upon a hydrant so constructed?

Ans. Not if the waste water is kept away from it.

Cross-int. 61. How many of such hydrants were ever used in New York, to your knowledge?

Ans. Quite a number; I don't know how many.

Cross-int. 62. What has become of them?

Ans. Cut up and sold for old copper.

Cross-int. 63. How much of them was copper?

Ans. The whole body of the hydrant, except the lower end, which was brass.

Cross-int. 64. What became of the cases and of what material were they?

Ans. They were cast iron; I don't know what has become of them.

Cross-int. 65. Why did you discontinue their use?

Ans. As near as I can recollect, why we discontinued their use was because this brass set (with the screw-thread cut on it) in the bed-piece became loose by continual screwing in and out the hydrant body.

Cross-int. 66. How often did you have occasion to take out the hydrant body in these hydrants?

775 Ans. It was an every-day occurrence somewhere.

Cross-int. 67. For what reason were they removed on such occasions?

Ans. To put a new valve on—a new leather washer.

Cross-int. 68. How many times in the course of a year did it become necessary to remove any one of these hydrants?

Ans. That depends on the amount of use.

Cross-int. 69. How large were these hydrants—that is, the diameter of the hydrant bodies?

Ans. About three inches in the clear on the inside.

Cross-int. 70. Can you name some others who were also foremen of repairs of the water-works department in the city of New York from 1843 up to about 1847?

Ans. I don't know of any now living.

Cross-int. 71. Will you name some of those who were foremen

during that period who, you do not know as a matter of fact, are now dead?

Ans. A man had charge by the name of Samuel Wight. He took in the district bounded north by Houston street—the whole lower part of the city.

Cross-int. 72. Who succeeded Mr. Wight, and when?

Ans. They had a man by the name of James Carroll there up to a few months ago. The place was run for a year after Mr. Wight's death, and then Carroll came in.

Cross-int. 73. When did Mr. Wight die?

Ans. Not more than two years ago.

Cross-int. 74. What hydrants have been used in the city of New York since those like Defendants' Exhibit B were discarded?

Ans. W. Dunham, Horatio Kelsey, Frye and St. John, Davis, Robinson—then came Ayres, Stevenson, who is making them now.

Cross-int. 75. When was the Ayres hydrant introduced?

Ans. I don't know that.

Cross-int. 76. Did the waste water ever freeze in these hydrants like Defendants' Exhibit B?

Ans. I suppose it did.

Cross-int. 77. How often were the cases or the hydrant injured from that cause.

Ans. I never knew of any in that case.

Cross-int. 78. In which hydrant did it occur?

Ans. It occurs with all of them—with the hydrants of all makers.

Redirect examination by Mr. BROWNE:

Int. 79. The model, Exhibit A, does not show the waste device. I suppose the hydrants themselves had means of getting rid of the waste water.

Ans. Yes.

Int. 80. You stated that it was "an every-day occurrence somewhere" to take out the hydrant body in the hydrants like Exhibit B; do you mean that every one of these hydrants had to have the body removed every day, or that some one of them had?

Ans. Some one of them had when it got out of repair.

Int. 81. Do you think there were as many as a hundred of these hydrants in the city of New York?

Ans. Well, I should think there was.

Cross-examination resumed:

Cross-int. 82. How were the wooden cases put onto the hydrants like Exhibit A when they were set?

776 Ans. By taking the hoops off the box.

Cross-int. 83. Was the same thing necessary when you removed the case?

Ans. Yes.

Direct examination resumed:

Int. 84. Is there any reason why the wooden case or barrel surrounding the hydrant body cannot be removed by simply slipping it up and over the top of the hydrant body?

(Objected to as leading and as in the nature of a cross-examination of the examination-in-chief.)

Ans. The only reason we have for taking the hoops off is this nozzle projecting. We frequently take out one stave and slip the whole thing over.

Int. 85. You mean the nozzle which is above ground, about half way from the top of the hydrant, I suppose?

Ans. Yes; that is the nozzle that I mean.

Cross-examination resumed:

Cross-int. 86. What is the diameter of the top of the wooden cases which you use?

Ans. I don't know.

JAMES D. KEEGAN.

Attest: JOHN A. SHIELDS, *Examiner.*

Deposition of Samuel A. Thomas.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Samuel A. Thomas; age, sixty-five; residence, Philadelphia, Pennsylvania, and occupation, gas engineer.

Int. 2. Were you ever in the employment of J. W. & J. F. Starr, of Camden, New Jersey?

Ans. I was.

Int. 3. While you were there did they make some hydrants for the town of Petersburg, Virginia?

Ans. They did.

Int. 4. Were these hydrants sent off all in one lot or in two lots.

Ans. My recollection is—I only know from the order-book which I kept at the time, and which I examined this morning, which has the delivery all in one lot, but we had subsequent orders from Petersburg.

Int. 5. Who got up or designed these hydrants?

Ans. I did; or, rather, I improved on an old hydrant we had at the time.

Int. 6. Will you look at the sectional model now produced in evidence and shown you, marked Defendants' Exhibit C, and say how far that corresponds with these Petersburg hydrants as you first got them up?

Ans. It is almost precisely similar in the hydrant as I first got it up; the valve-rod, from the main valve to the collar on the valve-rod, was all the way of the same diameter.

Int. 7. In what year were the Petersburg hydrants delivered?

(Objected to unless the order-book is produced.)

777 Ans. From the order-book which I looked at it was April or May, 1856.

Int. 8. You have said that you kept this order-book yourself. Did

you make the entry of the delivery in question at the time it took place?

Ans. At the time of shipment from the works.

Int. 9. You say that you designed these hydrants. How long was that before they were constructed so as to be ready for delivery?

Ans. We got the order in the fall or winter of 1855. The design was made, patterns made, and the hydrants completed ready for shipment by the following spring.

Int. 10. This model shows an enlargement of the valve-rod just under the collar, so as to make it fit close in the waste opening through which it slides. What led you to the use of that enlargement on the hydrants?

Ans. From using the hydrant we found that there was too much water discharged there in opening and shutting the valve. That was the reason for enlarging it.

Int. 11. Can you state about how long it was after you first got up the hydrant that you perceived this difficulty and put on the enlargement, or sleeve, as I should call it, to provide for it?

Ans. I can't state the exact time. I think it was done within a few months after the delivery of the first lot of hydrants.

Int. 12. How many of these Petersburg hydrants in all were there?

Ans. The first order was for fifty-nine hydrants. The second order was for eight hydrants. I didn't look for any subsequent orders.

Int. 13. I understand that you put one or more of these hydrants in use at Camden; is that so?

Ans. I think we did.

Int. 14. Was this to test their operation before delivering them?

(Both the last questions objected to as leading.)

Ans. I don't recollect of having put any in for the purpose of testing their operation. We had them in use for fire purposes and for proving pipes. That was in the Camden iron works.

Int. 15. Was this before or after the first lot were delivered to Petersburg?

Ans. After the first lot, to the best of my recollection.

Int. 16. How did you enlarge the valve-rod?

Ans. By casting brass around it.

Cross-examination by R. L. ROBERTS, Esq., of counsel for complainants:

Cross-int. 17. Was the waste opening the same size before you cast the brass upon the valve-rod as it was after that?

Ans. I don't remember whether the size of the opening was altered or not at the time.

Cross-int. 18. How was the case held in place in those hydrants?

Ans. By the earth surrounding them.

Cross-int. 19. How was the hydrant body made fast to the water-main?

Ans. It was made fast to a goose-neck by a yoke and two screw-bolts.

Cross-int. 20. Please explain how that was, as well as you are able by the model Exhibit C.

Ans. There was a cast-iron yoke, which I will call *a*, bearing on the projection below. This yoke extended around to the cen-
778 tre on each side, with a lug at each end, opposite corresponding lugs on the goose-neck, through which the wrought-iron bolts passed.

Cross-int. 21. When you wished to take the hydrant out of the ground how did you accomplish it?

Ans. We removed the two bolts and drew the hydrant out of the socket.

Cross-int. 22. How did you come at the bolts?

Ans. I see no way of getting at the bolts except by digging the earth away.

Cross-int. 23. What was the hydrant upon which you made the improvement?

Ans. I don't know who was the maker of the hydrant. I think it was the kind in use at that time by the city of Philadelphia. The waste was got rid of in a different manner than in the hydrant in the Exhibit C. This valve-rod passed through a stuffing-box; then there was a small arm on the valve-stem, with a rod attached, projecting downward. This rod was pointed at the lower end, and acted as a valve to close the waste opening, which was directly under it.

Cross-int. 24. How lately have you seen a hydrant similar in construction to Exhibit C?

Ans. I saw one this morning.

Cross-int. 25. Where?

Ans. Camden iron works, Camden, N. J.

Cross-int. 26. Are they still manufactured for use?

Ans. Yes, sir; the one I saw was in the company's store-room as stock.

Cross-int. 27. How are you able to tell if the hydrants made to fill the second order in Petersburg had the brass cast upon the valve-rod, as you have stated?

Ans. I have not said that it had. My impression is that it had, but I will not be sure.

Cross-int. 28. Have you already fixed the time as definitely as you are able when this enlargement was put upon the valve-rod?

Ans. I have.

Direct examination resumed:

Int. 29. Did you put the enlargement of the valve-rod upon one of the hydrants that you had in use in the Camden iron works first?

Ans. Not to my knowledge.

Int. 30. You think, then, if I understand you, that the first hydrant that this was put upon was a hydrant that went to Petersburg; was that so?

Ans. I am not sure that it was; very probably it was.

Int. 31. Did you supply such hydrants as Exhibit C to other parties besides the city of Petersburg?

Ans. We did.

Int. 32. You stated that you thought the enlargement was first put on within a few months after the delivery of the first lot of Petersburg hydrants, which was, according to the order-book, the spring of 1856. Tell us a little more exactly what you mean by a few months, whether more or less, by example, than six.

(Objected to, because the witness has said that he has already stated the time as definitely as he could.)

Ans. I have no way of fixing the time nearer than I have stated.

Int. 33. Please tell us what you mean by "a few."

779 Ans. The way I fixed that time was what I heard from a report about the hydrants—that they discharged too much water—and the defect was remedied as soon as convenient afterwards.

Cross-examination resumed:

Cross-int. 34. Did you ever have any trouble with the rod vibrating when the water was let on in the first hydrant which you made?

Ans. I have had no experience in the use of the hydrant at all.

Cross-int. 35. Did you ever hear any complaint made in that regard by the people who used them?

Ans. I don't remember of having heard any.

(Exhibits A and C remain by consent in possession of defendants' counsel until the testimony is concluded.)

SAMUEL A. THOMAS.

Attest: JOHN A. SHIELDS, *Examiner.*

Evidence for Defendants,

Taken in St. Louis, eastern district of Missouri, under commission, upon interrogatories annexed, before me, David D. Duncan, commissioner.

Deposition of Thomas J. Whitman.

JAN. 25, 1876.

Direct examination on behalf of defendants:

Int. 1. What is your name, residence, and occupation; are you the superintendent and chief engineer of the St. Louis city water-works, and how long have you been so?

Ans. My name is Thomas J. Whitman; age, forty-two years; occupation, a civil engineer; I am the superintendent and chief engineer of the St. Louis city water-works, and have been since May, 1867.

Int. 2. Will you look at the drawing produced herewith, and marked Defendants' Exhibit St. Louis Number C, and say whether

it correctly represents any hydrants now in use by the city of St. Louis; and, if yea, how many such hydrants has the city now in use, and how long have you personally known of their so being in use; were any such hydrants in use when you came upon the city water-works, or have they been all introduced since?

Ans. To the best of my knowledge, the drawing now shown me, and marked Defendants' Exhibit St. Louis Number C, does correctly represent hydrants now in use by the city of St. Louis. The exact number of them now in use I cannot tell; some six or eight of them probably are left. I have personally known of their being so in use since 1867. All were in use when I entered upon my present position.

Int. 3. Have you heretofore sent to the defendants or their manager, Mr. Carr, a hydrant of the construction shown by this drawing; if so, where did you get it?

Ans. I have sent such a hydrant directed to Mr. Carr. I got it, I think, from the corner of Second and Elm streets, in this city.

Int. 4. Will you name any persons who have been connected with the St. Louis water-works longer than yourself who have knowledge whether or not such hydrants were in use in St. Louis as early as 1857, or earlier?

780 Ans. Mr. Peter Magin and Willis R. Pritchard and Hugh Murray, —— Moore (old Moore, we call him), are the only ones I now think of.

Int. 5. If you say that such hydrants have been in use in St. Louis since 1857, while you have been employed there, will you state what has been their practical working, whether satisfactory or otherwise?

Ans. I have no knowledge earlier than 1867. Their practical working within my knowledge has been quite satisfactory. By way of explanation, I wish to say that when I came into my present office there were a number of such hydrants in use in this city, but most of them have been removed at various times because of their obstructing the sidewalk by reason of their projecting above it.

Cross-examination on behalf of complainants:

Cross-int. 1. What have been your duties as superintendent and engineer of the St. Louis city water-works since you were first so employed?

Ans. I have had entire charge of the designing, constructing, and preservation of our new works and a general superintendence of the old works.

Cross-int. 2. When did you first learn the construction of the hydrants such as you mention in answer to the second direct question?

Ans. Soon after my coming to this city; probably in the latter part of 1867.

Cross-int. 3. How did you ascertain how they were constructed?

Ans. By taking them up and examining them afterwards.

Cross-int. 4. Since you have been superintendent has it been neces-

sary to repair these hydrants? If so, how often, and in what manner, and what parts?

Ans. I know they have been out of order and repaired, but I cannot state the nature of the repairs. On hearing of their being out of order I gave orders to the street service to repair them, and did not attend to it in person.

Cross-int. 5. Was it necessary to remove these hydrants from the ground when they were to be repaired?

Ans. In some, but not in all cases.

Cross-int. 6. How did you remove them from the ground? State particularly all that was done in the operation.

Ans. I cannot say.

Cross-int. 7. Who was superintendent of the St. Louis water-works previous to your employment there? Please give his name and present residence.

Ans. Willis R. Pritchard. I do not know his present residence.

Cross-int. 8. Have any hydrants like or similar to Exhibit St. Louis No. C been put in while you have been superintendent of the St. Louis water-works; if so, how many?

A. None.

Cross-int. 9. How many during the first year of your employment as superintendent?

Ans. None.

Cross-int. 10. How many during the second?

Ans. None.

Cross-int. 11. How many during the third and each succeeding year until you ceased to put them in at all?

Ans. None.

Cross-int. 12. When was the hydrant which you sent to the defendants or Mr. Carr made, and when set in the ground?

Ans. I have no knowledge.

781 Cross-int. 13. Was it ever removed from the ground since it was first set until you took it up to send to the defendants?

Ans. I do not know. It was not while I was in charge of the water-works.

Cross-int. 14. When was it taken up, and for what purpose?

Ans. I do not remember when. I think it was about two years ago. My impression is that it had been removed and put into the scrap-pile, and shortly afterwards I had information that defendants wanted one, and I had it taken from the scrap and forwarded to them. It may be that it was taken up for the purpose of sending it to defendants, but I think not. There were a number of them taken up that season.

Cross-int. 15. Has this hydrant which you sent to the defendants ever been repaired; if so, in what way, and when?

Ans. I do not know.

Cross-int. 16. Where were the hydrants manufactured which you say were in use in St. Louis at the time you were first employed upon the city water-works? Please give the name of the town in which and the company, firm, or individual by whom they were made.

Ans. I do not know.

Cross-int. 17. Were any of the hydrants in use in St. Louis at the time you became superintendent different in construction from that shown in the drawing Exhibit St. Louis No. C; if so, in what respect did they differ, and how many of such different construction were there in use?

Ans. There were one or two other patterns; how many of each I do not know. One was similar to the one in the drawing (Exhibit St. Louis No. C); older, as I understand. It was similar except that it had a continuous outside casing. There was no joint in the casing. The other was similar to our present "surface" or "flush" hydrant. It did not project above the sidewalk.

Cross-int. 18. If there has been any objection to the hydrants similar to that shown in the drawing Exhibit St. Louis No. C in their practical use, state what that objection was, and how it was remedied, if at all.

Ans. I know of no objection to them, except that they obstructed the sidewalk, as I have stated.

THOS. J. WHITMAN.

Attest: D. D. DUNCAN,
U. S. Commissioner.

Deposition of Peter Meginn.

JAN. 25, 1876.

Direct examination on behalf of defendants:

Int. 1. What is you name, age, residence, and occupation? Are you employed by the St. Louis city water-works or have you ever been so? And, if yea, state when you were first employed there, and how much of the time you have been employed there since. Were you employed there earlier than 1857, and how much earlier?

Ans. My name is Peter Meginn; my age is nearly seventy-one years; I reside at 2418 Biddle street, in the city of St. Louis; I am now assistant foreman in the street service department of the St. Louis city water-works. I was first employed in these water-works in March, 1837. I have been employed in the works ever since, excepting about two years, in 1866 and 1867. I was there twenty years before 1867.

782 Int. 2. Will you look at the drawing produced herewith and marked Defendants' Exhibit St. Louis Number C and say whether it correctly represents any hydrants now in use by the city of St. Louis; and, if yea, how many such hydrants has the city now in use, and how long have you personally known of their so being in use? Were any such hydrants in use when you came upon the city water-works or have they been all introduced since?

(Witness examines Defendants' Exhibit St. Louis Number C carefully.)

Ans. There are a few such hydrants now in use in St. Louis, probably not more than a dozen altogether. I think they have been in use, to my personal knowledge, fully twenty-five years. They have

all been introduced since I came upon the water-works; none such were in use at that time.

Int. 3. Do you remember removing some hydrants from the ground in St. Louis at any time; and, if so, how soon was it after you first came into the employment of the St. Louis city water-works? And state how those hydrants were constructed, how they compared with the drawing above mentioned.

Ans. I removed hydrants from time to time as they got out of order. I cannot say how soon after I was employed on the works; it was when hydrants of this kind were first taken up.

Int. 4. If you say that hydrants like the drawing were in use in St. Louis earlier than 1857, state how much earlier, and how many of them were in use in the city at that time.

Ans. I cannot state precisely the time when these hydrants were first introduced here, but I feel very sure it was from thirty to thirty-three years ago. I think, but am not sure, that they were first introduced by a Mr. Foster, a Boston man, who was superintendent during the time that native Americanism was prominent in politics, about 1848. I think that about a dozen were first sent here, and we put them in as occasion required. Afterwards others were put in. I think that all of three hundred of them have been used here at different times.

Cross-examination on behalf of complainants:

Cross-int. 1. What were your duties while employed upon the St. Louis city water-works previous to 1857?

Ans. I was making joints and caulking them. I was pipe-laying.

Cross-int. 2. When did you first learn how the hydrants were constructed which you say were in use in St. Louis as early as 1857?

Ans. I cannot remember when I did first learn their construction?

Cross-int. 3. How did you ascertain how they were constructed?

Ans. From seeing them both before they were put in and after they were taken out.

Cross-int. 4. What have been your duties since 1857? What part of the work did you personally do?

Ans. Pretty much the same as before 1857. Part of the time I have superintended pipe-laying. I did it all personally, except as I was assisted by my fellow-workmen.

Cross-int. 5. Have the hydrants which you say were in use in St. Louis previous to 1857 been repaired at any time; if so, when and how?

Ans. They have been repaired several times; I cannot say when. They were sent to the machine-shops for repairs. I don't know personally what was done to them.

Adjourned.

783 JANUARY 26, 1876.

Cross-int. 6. How did you get at the hydrants to repair them?

Ans. We took off the part above the surface of the ground and

then dug down, separated it from the water-main, and then took it out.

Cross-int. 7. How many of these hydrants which were in use previous to 1857 are now in use in St. Louis?

Ans. Not many now—probably not more than half a dozen.

Cross-int. 8. How many of the hydrants which were in use there prior to 1857 have been removed and others of different construction put in their place?

Ans. Nearly all of them; over a hundred, I think.

Cross-int. 9. What was done with the hydrants so removed, and when were they taken out?

Ans. They were taken out at different times, as they got out of repair. They were thrown in the scrap and sold for old iron.

Cross-int. 10. If any of them were repaired how were they repaired?

Ans. I cannot say; I don't know.

Cross-int. 11. How did you get at the hydrants to remove them from the water-main?

Ans. We dug around them.

Cross-int. 12. Without reference to any drawing or model, except such as you may make yourself for illustration, will you please describe as minutely as possible the construction of the hydrants in use in St. Louis as early as 1857?

Ans. The first that we had had the casing or box all in one piece. Later ones had a joint in the box or casing at the surface of the ground, making it in two parts; otherwise they were like the hydrant drawn in the paper shown me yesterday.

Cross-int. 13. State particularly what difference, if any, there is between the drawing Exhibit St. Louis No. C and hydrants in use there as early as 1857.

Ans. Most of the hydrants in use there in 1857 were just like the drawing shown me.

Cross-int. 14. If hydrants like the said drawing were used in St. Louis state when they were first put in and who did the work of setting them.

Ans. I cannot state exactly when they were first put in, but I was the one that set them.

Cross-int. 15. Who was the superintendent of the St. Louis city water-works previous to Mr. Thomas J. Whitman?

Ans. Willis R. Pritchard.

Cross-int. 16. What part of the hydrants was it necessary to repair first—that is, which part gave out first when in use?

Ans. The seat—the bottom of them.

Cross-int. 17. How were such parts repaired?

Ans. At the machine-shop, with a leather seat or gasket, which was put on the inside.

Cross-int. 18. How many hydrants like those in use as early as 1857 were put in during the year 1858, if you were then employed on the city water-works? If not, how many were put in during the next year after 1857 that you were employed there? And please state what year that was.

Ans. I cannot recollect the number put in in any one year.

Cross-int. 19. Was there any difficulty or objection in the practical working of the hydrants in use in St. Louis as early as 1857? If so, state what it was.

784 Ans. No, sir; none that I know of.

Cross-int. 20. When were you last employed upon the St. Louis city water-works?

Ans. I am employed there now.

Cross-int. 21. How many hydrants like or similar to the drawing Exhibit No. C were put in during the last year of your employment?

Ans. None. None have been put in during the last two or three years—no new ones; some old ones have been put back after being repaired.

Cross-int. 22. Please give the names of some persons who were employed upon the St. Louis city water-works as early as 1857, and state where they now reside.

Ans. John Mooney, now a watchman at Stone's nut and bolt factory, on Riddle street, St. Louis, and Joseph Foster, Alton, Ill. I think Hugh Murray was here then. He works with me now. I don't remember any others.

Cross-int. 23. What effect did the frost have upon the hydrants similar to that shown in the drawing Exhibit St. Louis No. C?

Ans. I don't think the frost had much effect upon them unless they were leaking.

Cross-int. 24. Was the iron case of these hydrants at any time displaced by the action of the frost? If so, how frequently?

Ans. Never that I know of.

Cross-int. 25. How was the case gotten into place again when it was displaced by the frost?

Ans. It was not displaced by the frost to my knowledge.

PETER MEGINN.

Attest: D. D. DUNCAN,
U. S. Commissioner.

Evidence for Defendants,

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, R. E. Stilwell, examiner.

NEW YORK, *March* 2, 1876.

Present: Causten Browne, Esq., of counsel for defendants; George Harding, Esq., and George L. Roberts, Esq., of counsel for complainants.

Deposition of Moses Mern.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Moses Mern; seventy-one years of age; reside in 111th

street, Harlem; I am a clerk for S. P. Ayres, deceased; I have charge of the place at present. His widow is my wife's sister, and I have charge of the financial part of the business of the estate in which she is interested. Mr. Ayers died in December, 1863.

Int. 2. Have you in your possession the books, or some of them, showing Mr. Ayres' business in the year 1855 and subsequently?

Ans. I have. They are at present here, some of them.

785 Int. 3. In whose handwriting are the entries in the books which you have here?

Ans. There are two writings. The entries are in the handwriting of either Mr. Ayres or his then foreman, Wm. Bramwell.

Int. 4. Will you please state on the record here what entries you find in those books relating to patent fire-hydrants and in whose handwriting each entry is?

Ans. "1856, March 15, 1 patent hydrant and elbow, 465 pounds," in Mr. Bramwell's handwriting; "1856, May 1, P hydrant and case," in Mr. Bramwell's handwriting; "1856, June 23, 2 P hydrants complete, 366 pounds, St. Johns, N. B.," in Mr. Bramwell's handwriting.

The book in which these entries are is put in evidence, and is marked Defendants' Exhibit E.

Int. 5. What is this book Exhibit E, from which the preceding entries have been read?

Ans. I was not there at the time of the dates covered in this book. It appears to me to be a book in which work done was charged without any prices.

Int 6. I now ask your attention to a book marked on the back "Ledger," which appears to contain charges for work to the Croton aqueduct department, beginning in January, 1852, and going down to September, 1857; in whose handwriting are these entries?

Ans. Mr. Samuel P. Ayres'.

Int. 7. Will you state on the record what entries you find in this book relating to patent fire-hydrants?

Ans. Under the year 1856, and between Aug. 9 and Sept. 6, but without specific date, I find the entry "2 patent hydrants;" under the same year, 1856, and under date Nov. 21, I find the entry "one patent fire-hydrant, $27."

The book last referred to is put in evidence, and marked Exhibit F.

Int. 8. I now ask your attention to the third book, which appears to be a general day-book, and contains entries from February, 1857, down to the time of Mr. Ayres' death and afterwards, and desire you to state on the record what entries you find in this book relating to patent fire-hydrants, and in whose handwriting they are.

Ans. I find the following entries, all of which are in the handwriting of Sam'l P. Ayres: Under date of April 16, 1857, I find "Brooklyn water-works, 1 patent fire-hydrant, $25." Under date May 1, 1857, I find "Troy water commissioners, 1 patent hydrant, $25. Under date July 1, 1857, I find "John Osborn, 4 fire-hydrants

(patent), $25—$100." Under date of 1857, Aug. 23, "John Osborn, 1 patent fire-hydrant, $25." Under date of 1857, Sept. 10, "J. Barlow & Sons, Sing Sing, 1 pat. fire-hydrant & band, $25." Under date of 1857, Sept. 29, "Chicago water commissioners, 3 fire-hydrants (patent), $90." Under date of 1857, Oct. 1, "Chicago water commissioners, 3 fire-hydrants, $30—$90." Under date of 1857, Oct. 13, "Croton aqueduct department, 6 patent hydrants, at $30—$180; 4 long do., $120." Under date of 1857, Nov. 5, "Croton aqueduct department, 12 patent No. 2 hydrant-, $30—$360." Under date of 1858, Sept. 20, "Hoboken water commissioners, 5 patent hydrants, $30—$150." Under date of 1858, Sept. 21, "Croton aqueduct department, one patent hydrant, $25." Under date of 1858, Sept. 25, "Hoboken water commissioners, to 6 pat. hyd't, at $30 each. Cr. by returning hyd't." Under date 1858, Oct. 20, "water commissioners, Newburg, 2 patent hydrants, at $25—$30." Under date of 1859, May 19, "water commissioners of Newburg, 5 patent
786 hydrants, at $25 each, $125." Under date of 1859, July 12, "Detroit water commissioners, 9 patent hydrants, at $30—$270." Under date of 1859, Oct. 10, "Patent Water & Gas-Pipe Company to 9 patent hydrants, $28—$272."

The book last referred to is put in evidence, and marked Exhibit G.

Cross-examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Cross-int 9. When did you first become connected with Mr. Samuel P. Ayres in a business capacity?

Ans. I was employed by him to do a little writing and a few errands in 1861. After his decease I was left in *his* charge of the counting-room department.

Cross-int. 10. Where did Mr. Ayres reside and where did he carry on his business from the beginning of 1856 to the time of his decease, December, 1863?

Ans. He lived in 54 First street, New York city, and then changed to the town of New Rochelle, about twenty miles from New York, on the New Haven railroad. He carried on his business during that time, 174, 176 Rivington street, corner of Albany street, in the city of New York.

MOSES MERN.

Attest: R. E. STILLWELL, *Examiner.*

Deposition of Miles T. Connolly.

MARCH 2, 1876.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Miles T. Connolly; age, forty-one years; reside at 315 West 44th street, New York city, and am a machinist in the stop-cock and *and* fire-hydrant line.

Int. 2. Were you ever in the employment of Mr. Samuel P. Ayres of this city? If so, state what his business was, whereabouts in New York it was, and during what year you were with him.

Ans. I was an apprentice to him; served my time with him. I began in August, 1849, and continued there until April, 1861; then went to the war, and returned to him again in September, 1861, and remained there for two months, when I left him finally, and worked there no more until after his death. Mr. Ayres' business was that of a machinist, and a manufacturer of stop-cocks and fire-hydrants, at 174 and 176 Rivington street.

Int. 3. While you were in Mr. Ayres' place, before you went to the war, was there at any time any fire-hydrants made there which were called in the shop "patent hydrants," by way of distinction?

Ans. Yes, sir.

Defendants here put in evidence certified copy of the patent of the United States, granted to Samuel P. Ayres, assignee of William Bramwell, No. 17538, dated June 9, 1857, and marked Exhibit H.

Int. 4. Will you look at the drawings annexed to Exhibit H, and state what difference, if any, there was between the hydrants you speak of, which were called the patent hydrants, and that which is shown in this drawing, particularly as regards the mode of
787 connection of the jacket or case C at its lower end with the elbow of the main, which is marked B in the drawings?

Ans. Here (pointing to the lower part of Fig. 2) the lower end of the case was bolted under the flange of the elbow with an india-rubber washer between the flange on the bottom of the hydrant and the flange on the elbow. I am now speaking of what was called "the patent hydrant."

Int. 5. Was the case in the patent hydrants made in one part or in two; and, if in two, how were they connected together?

Ans. They were made in two parts, connected with lugs by six three-eighths bolts. The division into two parts was lengthwise of the case.

Int. 6. Please describe briefly how these patent hydrants, so called, were set in place in the ground.

Ans. The case was bolted to the elbow. I mean when we bolted the two parts of the case together it clinched the flange of the case under the flange of the elbow. Then the hydrant was set into the case and bolted just above the surface of the ground.

Int. 7. Can you produce a model representing in section the patent hydrants, so called, so far as regards the construction and arrangement of the hydrant body or stock, the elbow of the main, and the outside jacket or case, and the mode in which the flange of the case was clinched, as you have described?

Ans. Yes, sir; this is the model.

The model referred to is put in evidence and marked Exhibit J.

Int. 8. On this model there is a black mark, with the words "ground line" just below the place where the upper end of the case or jacket is shown as bolted to the hydrant-stock. Is that the place

where the ground line was with reference to the upper end of the case or jacket?

Ans. It was.

Int. 9. Does this model show the actual depth below the ground line at which the main valve and its seat were located?

Ans. It does.

Int. 10. Perhaps you don't understand me. As the patent hydrants, so called, were made and set, about how deep below the surface of the ground was the place where the flange was clinched in the hydrant body or stock?

Ans. About four feet.

Int. 11. I notice a white line across the lower part of the piece of wood near the bottom of hydrant-stock. What does that white line represent or stand for?

Ans. It stands for an india-rubber washer.

Int. 12. What parts did this washer lie between?

Ans. 12. Between the bottom flange of the hydrant and the flange of the elbow.

Int. 13. By this model it would seem that there were two flanges formed on the elbow, and that the flange on the bottom of the case entered between them. Were there really two flanges on the elbow; if not, what was the part which in the model shows underneath the flange of the case?

Ans. It was part of a flange to guide the case so that it would not slip down.

Int. 14. Will you look at the pattern now shown to you, and marked Defendant's Exhibit K, and state, if you know, what it is?

Ans. It is the elbow belonging to Ayres' patent hydrant.

Int. 15. Do you know whether it is a pattern which was used at his place to make the patent hydrants from?

788 Ans. I could not say, not being in the foundry; but it is a pattern similar to the castings I have used at Mr. Ayres' to make the patent hydrants from.

Int. 16. Is the little wooden stud having about a square inch of face, which we see on each of the halves of this pattern, what you referred to just now as part of the flange to support the case before it was clamped up?

Ans. It is.

Int 17. This model, Exhibit J, does not show any waste-pipe or waste-valve. I suppose the patent hydrants, so called, made at Mr. Ayres' place, had waste pipes and valves?

Ans. Yes, sir.

Int. 18. Can you produce a waste-valve such as these hydrants had?

Ans. Yes, sir; this is one.

A valve is shown by the witness, and the counsel for defendants puts the same in evidence, and it is marked Exhibit L.

Int. 19. You have described, so far as regards the parts in question here, the patent hydrants, so called, of Ayers, and produced the model J as representing them. Up to the time that you went to

the war in 1861 were there ever any hydrants made at Ayres' place and known there as patent hydrants except such as are represented by this model, Exhibit J?

Ans. No, sir; there were none.

Int. 20. Is there a hydrant now in place in the ground in New York city which is one of those patent hydrants?

Ans. Yes, sir; there is one in 5th avenue, near 26th or 27th or 28th streets. There is one also in Chambers street, opposite the city hall.

Int. 21. Is there any stamp on the one in the 5th avenue?

Ans. There is. "Patent applied for, 1856."

Int. 22. Were those patent hydrants, so called, when made by Mr. Ayres after the patent of June 9, 1857, stamped with the date of the patent?

Ans. I believe they were stamped with the year 1857, but not with the month or date.

Int. 23. Speaking from your own recollection, how many of these patent hydrants, so called, can you bring to mind as having been made?

Ans. Well, I can safely say twenty-five or thirty, and I think more.

Int. 24. Do you remember an Ayres hydrant differing from those shown by Exhibit J in the way in which the bottom part of the hydrant-stock was joined to the upper part of the elbow?

Ans. Yes, sir. During the summer of 1855 there was one got up that screwed into the elbow, with a leather washer between the flanges. There was only one, and it was put down in front of the shop.

Int. 25. Do you mean that there was a screw-thread cut on the lower part of the stock matching one cut on the elbow?

Ans. Yes, sir.

Int. 26. So that the hydrant-stock was jointed to the elbow by a screw-joint instead of merely resting on a washer, as shown on the model, Exhibit J?

Ans. Yes, sir.

Int. 27. In other respects was that hydrant like model Exhibit J?

Ans. No, sir. The casing of the hydrant was set down and rested on the flange of the elbow.

Int. 28. Instead of being itself flanged so as to be clinched underneath the elbow flange?

789 Ans. Yes.

Int. 29. Except as to the differences you have mentioned was that screw-joint hydrant like model Exhibit J?

Ans. Yes, sir; except what I have mentioned.

Int. 30. I will call your attention to this: In the screw-joint hydrant was the top of the case flanged and bolted to the stock, as in Exhibit J?

Ans. No, sir. There was no downward bend to the flange on the hydrant-stock. Otherwise there were two flanges, as in the model, but not bolted together; they were brought together by the screwing home of the screw-joint.

Int. 31. Can you produce a drawing representing the manner in which the bottom of the case rested upon the flange of the elbow?

Ans. Yes; this is it (producing the sketch marked Exhibit M).

Int. 32. You say this screw-joint hydrant was put down in the summer of 1855, in front of the shop. Was it, while it was down, a private hydrant or a city hydrant?

Ans. It was a city hydrant.

Int. 33. Was this before or after hydrants like model Exhibit J were made?

Ans. It was before.

Int. 34. How long did this screw-joint hydrant remain in place in the ground?

Ans. The exact time I could not say. I know it remained over a year there.

Int. 35. Was any difficulty found in it? If so, state what it was.

Ans. The difficulty was that if you screwed the hydrant-stock out it was too much trouble to get it back in its place. The nozzle might be pointing the wrong way when the hydrant was screwed home.

Int. 36. Have you known of any other hydrants in which the connection of the bottom of the stock with the elbow was by a screw-joint where a similar difficulty has been found?

Ans. Not of my own personal knowledge. I have heard of it, but have never seen it.

Int. 37. Was this screw-joint hydrant finally taken up and disused?

Ans. Yes, sir; at least I saw another hydrant in its place some time afterwards.

Adjourned.

FRIDAY, *March* 3, 1876.

Present: Counsel as before, and George Harding in addition, as counsel for complainants.

Int. 38. Was there made at Mr. Ayres' place, about the years 1855 and 1856, a kind of hydrant which was known as a "pot hydrant?"

Ans. There was a pot hydrant [made] during those years.

(Counsel for the defendants state that they will not claim that the entries heretofore produced of "P. hydrants" relate to the so-called patent hydrants.)

Cross-examination by GEORGE HARDING, Esq., of counsel for complainants:

Cross-int. 39. Were the hydrants which were called "patent hydrants" furnished with any other case than is shown in Exhibit J?

Ans. There was one or two which had a different flange on the top of the case—a round flange, with four bolts instead of two.

790 Cross-int. 40. When were those kind of hydrants made, according to your best recollection?

Ans. During the year 1858.

Cross-int. 41. How do you fix that date for those hydrants?

Ans. It was the year that the patent was put on to the hydrants; that is, cast on.

Cross-int. 42. On what part of the hydrant was the word "patent" cast?

Ans. On the top part. It was an oval plate with "patented 1857."

Cross-int. 43. Was it cast on the hydrant itself or on a separate plate and fastened onto the hydrant?

Ans. It was cast on the hydrant itself.

Cross-int. 44. When was the first hydrant constructed with the words "patent applied for" thereon?

Ans. During the year 1856.

Cross-int. 45. How do you know that it was during that year?

Ans. I was working on the hydrant.

Cross-int. 46. Weren't you working there in 1855?

Ans. Yes, sir.

Cross-int. 47. How do you know that it was not in 1855 when it was put in?

Ans. Because I was working there during 1855 and 1856, and they had no patent hydrants previous to applying for one in 1856.

Cross-int. 48. What time in 1856 did they first make patent hydrants?

Ans. I think it was late in the spring or beginning of the summer.

Cross-int. 49. How did you know that they had applied for a patent?

Ans. By being working in the shop and being interested there.

Cross-int. 50. Who got up this first patent hydrant which was made there?

Aus. Mr. William Bramwell, foreman of the shop.

Cross-int. 51. Did you work upon the first patent hydrant got up there?

Ans. I did.

Cross-int. 52. What work did you do?

Ans. I turned the valves, valve-seats, rods, waste-valves; that was the part of the work I was doing at the time.

Cross-int. 53. Will you swear that no hydrant was ever made at that shop like that shown in the drawing annexed to Bramwell's patent of June 9, 1857, Exhibit H?

Ans. There never was any made previous to this one in Exhibit H in that shop.

Cross-int. 54. When was their first hydrant like that made?

(Objected to because witness has not said that any hydrant was made there like this exhibit.)

Ans. During the year 1856.

Cross-int. 55. Are you willing to swear that the first hydrant like that exhibit was made there prior to December, 1856.

Ans. To the best of my knowledge, it was.

Cross-int. 56. Do you remember the circumstances of a patent being obtained for these hydrants?

Ans. I do. It was a common talk in the shop.

Cross-int. 57. Did you continue to make hydrants like that shown in the drawing Exhibit H after the patent was obtained?

Ans. I did, as fast the orders came in for them.

791 Cross-int. 58. How long did they continue to make hydrants like that shown in the drawing after the granting of the patent?

Ans. They continued making them up to 1861, when I left the employment of Mr. Ayres.

Cross-int. 59. Did you make any other kind of hydrant between 1857 and 1861 except like that shown in the drawing Exhibit H?

Ans. Yes, sir; we made three different kinds.

Cross-int. 60. Describe those three kinds.

Ans. One was what we called a "pot hydrant;" the other was a surface hydrant for Central Park; the other was a hydrant that was in general use throughout the city.

Cross-int. 61. Was the hydrant which was in general use throughout the city like the drawing annexed to Exhibit H?

Ans. No, sir; it was a hydrant without a case.

Cross-int. 62. Then you made four kinds of hydrants from 1857 to 1861?

Ans. Yes, sir.

Cross-int. 63. What proportion of the hydrants made from 1857 to 1861 were like the drawing annexed to Exhibit H, and what proportion as compared with the hydrant in general use throughout the city which you say had no case?

Ans. I think we made forty or fifty hydrants without cases to one with a case. The case hydrant did not come into general use throughout the city.

Cross-int. 64. How many hydrants like the drawing annexed to Exhibit H are you willing to swear were made while you were there prior to 1861?

Ans. I can safely say twenty-five or thirty.

Cross-int. 65. You are certain, then, that as many as twenty-five were made like that Exhibit H?

Ans. Yes, sir.

Cross-int. 66. Were they making any of those hydrants after you returned from the war?

Ans. Yes, sir.

Cross-int. 67. After 1861, when did you next work there?

Ans. In February, 1864.

Cross-int. 68. Were they making any of these hydrants then like the drawing annexed to Exhibit H?

Ans. I think they were, but there were very few of them.

Cross-int. 69. What kind of hydrants were they making principally at that time?

Ans. Hydrants without cases.

Cross-int. 70. How long did you remain there after your return in 1864?

Ans. About eighteen months.

Cross-int. 71. Are you willing to swear that they made two hydrants with cases during that eighteen months?

Ans. To the best of my knowledge, I think they did.

Cross-int 72. Can you swear positively that they did make two?

Ans. I think I can swear positively.

Cross-int. 73. Can you swear what was done with either of those hydrants, if there were two made?

Ans. I cannot, because it was not my business to know where hydrants went. It was my business to fit up hydrants.

792 Cross-int. 74. Did you ever set up a hydrant and put all the parts together.

Ans. Yes, sir; hundreds of them.

Cross-int. 75. How many hydrants without cases are you willing to swear during that eighteen months, while you were at work at that place—that is, for the Ayres estate—were made?

Ans. Seventy-five to one hundred. I am willing to say there may have been double that.

Cross-int. 76. Did you ever work there after that?

Ans. Yes, sir.

Cross-int. 77. When next?

Ans. During the fall of 1871 and down to the latter end of April, 1872.

Cross-int. 78. During that time were there any hydrants made there with cases or like the drawing Exhibit H?

Ans. I don't think there was.

Cross-int. 79. What kind of hydrants were made during this last period?

Ans. Hydrants without cases.

Cross-int. 80. Did you make the model Exhibit T?

Ans. No, sir.

Cross-int. 81. When and where was it first shown to you?

Ans. Yesterday, at Mr. Blake's office, in Murray street.

Cross-int. 82. When did you last see the hydrants in Fifth avenue and in Chambers street?

Ans. I passed by the hydrant in Fifth avenue this morning on my way down, and the one in Chambers street I saw yesterday.

Cross-int. 83. Whereabouts in Fifth avenue is that hydrant?

Ans. On the west side of the Fifth avenue, north of 27th street.

Mr. Harding requests that the witness, Wm. Stevens, withdraw during the cross-examination of the present witness.

Counsel for the respondents cheerfully complies with the request, and the witness, who has just entered the room, and has heard none of the cross-examination of the witness Connolly, leaves the room accordingly.

Cross-int. 84. When and by whom was your attention first called to a casing hydrant at that shop?

Ans. During the year 1856 by William Bramwell, who showed me a drawing.

Cross-int. 85. Was that drawing like that annexed to Exhibit H?

Ans. Yes, sir.

Cross-int. 86. Did he tell you he was going to get a patent for it?

(Objected to as incompetent.)

Ans. He told the whole shop—not me alone; they all heard it in the shop.

Cross-int. 87. Did he get up a hydrant like that drawing after he showed you it?

Ans. He got up a small model, which I believe he sent to Washington or to some patent agency.

Cross-int. 88. Was that the first hydrant with a casing that you ever saw made?

Ans. That was the first hydrant that I ever saw made with a casing attached to it.

Cross-int. 89. At the time you were shown this drawing and a model with a case attached to it, did you understand that this casing was regarded by him as a new thing, or what did you understand about it?

(Objected to as incompetent.)

793 Ans. We all regarded it as a new thing—all in the shop.

Cross-int. 90. What did you regard as a new thing?

Ans. The casing; so that the hydrant could be taken out without breaking the ground.

Cross-int. 91. How long before the model was sent away was you shown this drawing?

Ans. A few weeks before the model was made I was shown the drawing; the model was made from the drawing.

Cross-int. 92. After making the model from that drawing, what was next done at that shop with reference to making the hydrants with a casing?

Ans. After it was understood he would receive a patent for it we commenced making patterns, and while he was applying for a patent he commenced making patterns for the hydrant to be put in general use.

Cross-int. 93. Were those the first casing patterns which you got up, and how long after the model was completed do you think it was?

Ans. About a month. They were the first casings.

Cross-int. 94. How soon was the first hydrant cast or made with a casing at that shop?

Ans. As soon as the patterns were complete there were castings taken from them.

Cross-int. 95. When was the first hydrant set up with a casing made at that shop?

Ans. The first hydrant was set up with a casing and screwed into the bend in front of the shop.

Cross-int. 96. How soon after that was the next hydrant made with a casing, and when was it set up?

Ans. During the following year; when it was set up I don't know.

Cross-int. 97. How many months after the first hydrant was set up with a casing did you see the next hydrant with a casing at that shop?

Ans. A month or two months. The first hydrant I saw with a casing had the hydrant screwed into the elbow during the year

1855. In ten or eleven months, during the following year, I saw the next hydrant with a casing at that shop.

(Adjourned for luncheon, counsel for the respondents requesting the witness not to have any conversation with any person whatever upon the subject to which his testimony relates during the recess.)

Cross-int. 98. Did you set the casing hydrant in front of the factory?

Ans. No, sir.

Cross-int. 99. Did you see it set?

Ans. Yes, sir.

Cross-int. 100. Who set it?

Ans. Men employed by the Croton aqueduct department.

Cross-int. 101. Can you name any one who set that hydrant?

Ans. I know none of them by name except the foreman, Samuel White.

Cross-int. 102. Where does he live?

Ans. He is dead.

Cross-int. 103. Did you see that hydrant taken up?

Ans. No, sir; not that I recollect.

Cross-int. 104. Do you know anything of your own knowledge about that hydrant after it was put down?

Ans. Yes, sir; I opened it several times and let the water run to wash the streets.

Cross-int. 105. Is that all you know about it subsequent to that of its being put down?

794 Ans. That is all, with the exception of its being there in the neighborhood of a year.

Cross-int. 106. How do you know of its being there only in the neighborhood of a year?

Ans. Because in the following year I went to open the hydrant in the summer time, and I found a different hydrant in the place of it.

Cross-int. 107. Describe exactly the different appearance the hydrant presented above ground from what it did before.

Ans. Above ground there were two flanges on the first hydrant that was put down. On the hydrant I saw the following year there was but one flange on the surface of the ground, and similar to the hydrants now in general use in the city.

Cross-int. 108. Had it a case?

Ans. It had a wooden case.

Cross-int. 109. Who got up this hydrant—I mean the first one?

Ans. Mr. Bramwell. It was his idea.

Cross-int. 110. Did you get up patterns?

Ans. I don't believe they did. They altered the bottoms of hydrants that were in use; they altered the bottoms and the surface flange.

Cross-[int.] 111. Did they get up a pattern for the casing?

Ans. Yes, sir.

Cross-int. 112. What occurred when they put that hydrant down?

Ans. Nothing but the difficulty in getting the nozzle to set right—to set fronting the street.

Cross-int. 113. How did they get it to set right?

Ans. By altering the leather washer that was underneath—the leather washer that formed the joint between the bottom flange of the hydrant and the flange of the elbow.

Cross-int. 114. Did they get it set right?

Ans. Yes, sir.

Cross-int. 115. After they set this hydrant what kind of hydrants did they build during the ten or eleven months you speak of?

Ans. Hydrants without cases.

Cross-int. 116. What became of the pattern of the casing of that hydrant?

Ans. I don't know, sir; I never had it in the shop; it was in the foundry?

Cross-int. 117. Did you ever see a casting made from that pattern of casing, except that one?

Ans. No, sir; I did not.

Cross-int. 118. Who first called your attention to that casing?

Ans. My attention was called to it when I was fitting up a hydrant in the shop. At that time my part of the business was specially fitting up hydrants.

Cross-int. 119. Fitting up what parts?

Ans. Turning the valves, rods, nozzles, stuffing-boxes, waste-valves, and then putting the hydrants together.

Cross-int. 120. Did you put this casing together yourself?

Ans. I don't recollect as I did.

Cross-int. 121. Do you know who did put it together?

Ans. I couldn't say; Mr. Bramwell superintended; every time he got up a new idea he superintended it himself.

Cross-int. 122. When you saw this casing did it strike you as a new idea to have a casing on a hydrant?

Ans. Yes, sir; I had never seen a casing on a hydrant before.

Cross-int. 123. Did they tell you what this casing was for at that time?

795 Ans. Yes, sir; it was to lift the hydrant up without breaking the ground—to take one hydrant up and put another in its place without breaking the ground.

Cross-int. 124. Who told you, if any one, that this was a new thing?

Ans. My own observation, as I had never seen anything like it before.

Cross-int. 125. Was it talked of in the shop and regarded there as a new thing—a casing by which the hydrant could be removed without breaking the ground—at that time?

(Objected to as incompetent.)

Ans. It was regarded as a new thing by all hands in the shop.

Cross-int. 126. Was it talked over among the hands as a novel feature of importance?

Ans. It was.

Cross-int. 127. After this hydrant was put up or set what was said about it immediately afterwards?

Ans. It was said it was a great trouble to get the nozzle of the hydrant to set right.

Cross-int. 128. Did they ever make another like it?

Ans. No, sir.

Cross-int. 129. Did you ever hear anything about making another like it?

Ans. No, sir.

Cross-int. 130. In how many pieces was that casing cast?

Ans. It was cast in one piece.

Cross-int. 131. Are you certain of it?

Ans. I am pretty certain; it was the only one of that kind that was cast that was brought into the shop.

Cross-int. 132. Was this the only casing that was cast in one piece in that shop?

Ans. The only one that ever I saw.

Cross-int. 133. Are you certain that the only casing in one piece that you ever saw at that shop was for this hydrant?

Ans. I am.

Cross-int. 134. Are you certain that the first hydrant which you saw which had a casing in one piece was put up at the factory?

Ans. Yes, sir.

Cross-int. 135. Did you do any work upon the casing yourself of that hydrant?

Ans. Not that I recollect.

Cross-int. 136. From the time you saw that hydrant set up to the present time what has occurred to direct your attention to it?

Ans. Nothing; only this controversy going on now; nothing previous to yesterday.

Cross-int. 137. What occurred yesterday to direct your attention to it?

Ans. I was asked by Mr. Stevens whether I recollected the time that those hydrants were first got up.

Cross-int. 138. What did he say to you about this particular hydrant, if anything?

Ans. He asked me if I recollected a screw-hydrant going down in front of the shop.

Cross-int. 139. Did you tell him what date it was put down?

Ans. I told him, as near as I could recollect, it was during the summer of 1855.

Cross-int. 140. Is that all that passed between you?

Ans. We had a talk over this hydrant (pointing to model Exhibit J).

796 Cross-int. 141. Did you give him any reason for fixing the summer of 1855 at the time you named that date?

Ans. None; only that it was nearly a year previous to the other patent being applied for.

Cross-int. 142. Why do you say it was nearly a year?

Ans. Because it was in the beginning of the summer 1855 when this screw-hydrant was put down, and it was late in the spring of the following year when the other patent was applied for, or was talked about in the shop.

Cross-int. 143. How do you know it was late in the spring when the other patent was talked about?

Ans. By seeing the drawings, previous to the model being made, in Mr. Bramwell's hands.

Cross-int. 144. How do you know that it was late in the spring that you saw the drawings?

Ans. Because it was somewhere in the middle of the summer when we got a casting—a small brass casting—of the model.

Cross-int. 145. How do you know it was somewhere in the summer that you got a small brass casting?

Ans. On account of my working in the shop.

Cross-int. 146. How do you know it was in the summer at all?

Ans. By working in the shop and hearing them talk about getting a patent and making a model.

Cross-int. 147. How do you know that this was in the summer?

Ans. I have no other means than by knowing it was coming on the fall when we got the hydrant complete.

Cross-int. 148. Did you make the castings like the model?

Ans. The foundry did, but on a larger scale than the model. There was only one casting made of the model that I know of; that was a brass casting, and I think that was sent to Washington.

Cross-int. 149. Did you ever see a hydrant set up like the model on a larger scale; and, if so, where first?

Ans. I never saw one setting up, but I saw one after it was set up.

Cross-int. 150. Where was that?

Ans. On the west side of the 5th avenue, north of 27th street.

Cross-int. 151. When did you first see that hydrant, and when was it set up?

Ans. I suppose about five years ago I first took notice of it. When it was set up I don't know.

Cross-int. 152. Was that the first hydrant that you ever saw set up, except the one at the factory (with the casing)?

Ans. No, sir; that is not the first one I saw with a casing. I saw hydrants set up with casings in 1857 and 1858.

Cross-int. 153. Where was the first hydrant you saw set up with a casing, and when, other than the one at the factory?

Ans. I could not say where I saw it—that is, the locality. I saw several during the year 1858. I had nothing to do with putting down hydrants and putting them in the ground. The Croton board did that themselves.

Cross-int. 154. After you commenced to make these hydrants like the model which went to the Patent Office did you continue making them; and, if so, how often?

Ans. We made a few of them; I should say three or four. The patterns were then sent, either I am not sure whether to Chicago or Detroit; I mean the square-top patterns.

Cross-int. 155. Did you make no more?

797 Ans. Not that I can recollect; with a square top.

Cross-int. 156. How about the rest of the hydrants? Did you make any more like the patent model or drawing, with the exception of the square top?

Ans. With the exception of the square top, there was no difference between the square-top hydrant and this model here (pointing to Exhibit J).

Cross-int. 157. Was the hydrant in front of the shop like Exhibit J, except that it had a screw at the bottom of the hydrant-stock?

Ans. No, sir; it was altogether different.

Cross-int. 158. Could you describe its construction fully?

Ans. Yes.

Cross-int. 159. Do so.

Ans. It had a round surface flange, and it had a flange at the bottom of the hydrant, and a screw also. It had no valve-seat, except what was cast with the hydrant. The valve-seat was cast with the hydrant.

Cross-int. 160. Is that all the difference?

Ans. That is all the difference. The difference between that and the model J is that it had no lugs on like model J. The casing was whole instead of two halves, like on model J, and when you screwed the hydrant down into the elbow it held itself, instead of the two bolts at the surface line, as in Exhibit J.

Cross-int. 161. What was the shape of the upper part of the hydrant above the ground line?

Ans. There was no difference in it above the ground, except the flange; it was the same shape.

Cross-int. 162. Was it round in section or square in section above the ground?

Ans. Round.

Cross-int. 163. Did it differ in any respect in the section above the ground from the Chambers-street hydrant?

Ans. None, except it was smaller in diameter above the ground than the Chambers-street hydrant.

Cross-int. 164. Why were the hydrants changed from square above the ground to round?

Ans. I know of no reason, except to have the hydrants uniform throughout the city above the ground.

Cross-int. 165. Why were the hydrants like the model made square above the ground?

Ans. I believe it was so as to be ornamental in front of residences.

Adjourned to 10½ a. m. the 4th inst., the witness being cautioned as before to have no conversation on the subject of his testimony in the meanwhile.

SATURDAY, *March* 4, 1876.

Cross-int. 166. Did you make drawing Exhibit M?

Ans. No, sir.

Direct examination resumed by CAUSTEN BROWNE:

Int. 167. You have spoken in your cross-examination of case hydrants which were made at Mr. Ayers' place in the year 1856 and afterwards, before you went to the war—some twenty-five or thirty in number, according to your recollection—which hydrants you said were like the drawing annexed to the Bramwell patent. Can

you produce or refer to any pattern from which the castings from which any part of those hydrants were made?

798 Ans. Yes, sir; the bend or elbow shown by the pattern Exhibit K is similar to the castings which I used for those hydrants.

Int. 168. The case of those hydrants were cast in two parts, I believe?

(Objected to as leading.)

Ans. Yes, sir.

Int. 169. Could such a pattern as Exhibit K be used for casting bends or elbows which were in one piece with the case?

(Objected to.)

Ans. I don't think they could, although I am not versed in casting matters.

Int. 170. Now, will you point out, if you have not already done so on the cross-examination, what differences of construction, particularly below the ground line, existed between those twenty-five or thirty cased hydrants, for the elbows of which you say castings were used like the pattern Exhibit K and the model Exhibit J?

Ans. There is none.

Int. 171. When you spoke of twenty-five or thirty case hydrants made at Ayers' during the time inquired of like the drawing Exhibit H, did you notice that that drawing showed the case or elbow cast in one piece?

Ans. The twenty-five or thirty hydrants which I spoke about were similar to model Exhibit J.

Int. 172. Examine the drawing of Exhibit H and see whether it does not show the elbow and case as cast together in one piece.

Ans. It does.

Int. 173. Does the model Exhibit J, which you say the twenty-five or thirty hydrants were like, show the elbow and case cast separately from each other?

Ans. It does.

Int. 174. When this drawing, Exhibit H, was put before you on the cross-examination and you were asked in regard to a hydrant made like it, was your attention called to the fact that that drawing shows the elbow and case cast in one piece?

Ans. My attention was; I saw it by looking at it, but I said nothing about it.

Int. 175. Why did you not, in answering yesterday, mention that point about the drawing as a point in which it differed from the twenty-five or thirty hydrants actually made?

(Objected to.)

Ans. My reason in not doing that was that there were so few of those hydrants made that I thought that Exhibit J covered the question that I was asked.

Int. 176. Did you ever see a case hydrant in which the case and elbow were cast in one piece, as in the drawing Exhibit H?

Ans. I have a recollection that there was a case made at one time cast that the elbow and case were in one piece, although I am not positive about it. At that time we were every once in awhile making alterations about the patterns—Mr. Bramwell was.

Int. 177. You spoke in your cross-examination of a large number of hydrants made there which you said were without cases. Did you ever see one of those hydrants in place in the ground?

Ans. Yes, sir.

Int. 178. Was there any case around it in the ground?

Ans. I saw them during those years with a square iron box to cover the waste-valve; then I saw them putting wooden cases around them, but no iron cases.

799 Int. 179. How early do you remember seeing any of those hydrants in the ground with wooden cases around them?

Ans. About 1856; they might have been on in 1854 or 1855.

Int. 180. You have said in your cross-examination that the hydrant on the 5th-avenue, north of 27th street, was a hydrant like the Bramwell patent model on a larger scale. How does this 5th-avenue hydrant compare with the model Exhibit J as to the parts below ground?

Ans. There may be some difference between them. The bend may be cast on the case. I have not seen that hydrant below the ground. I may have seen it in the shop, but I don't know.

Int. 181. In pointing out the differences between the screw-joint hydrant, which was put down in front of the shop, and the hydrant like the model J, you said that the screw-joint hydrant had no lugs on it like model J. Will you point out on model J what you mean by lugs?

Ans. (The witness puts his finger on the model J and points to the lower piece, through which the bolt goes just above the ground line.)

Cross-examination resumed by Mr. HARDING:

Cross-int. 182. You have said in your one hundred and seventy-sixth answer "At that time we were every once and awhile making alterations about the patterns—Mr. Bramwell was." Do you know why these alterations were made and what the alterations were?

(Objected to as incompetent.)

Ans. They made alterations in altering the chamber of the hydrant to get a larger body of water through the chamber of the hydrant, five or six inches in diameter. On one of these hydrants they had a round flange with four bolts through it; on the other one they had a round flange—a downward flange—to cover the face of the flange with only two bolts.

Cross-int. 183. In how many pieces was that casing which had the two bolts?

Ans. Two pieces—two halves.

Cross-int. 184. And in how many pieces was the other casing?

Ans. In two halves. The cases were the same with the exception of the altering the flanges.

Cross-int. 185. When was it, according to your best recollection, the case was made in which the elbow and case were in one piece, as stated by you in your one hundred and seventy-sixth answer?

Ans. To the best of my recollection, it was in 1856.

Cross-int. 186. What became of it?

Ans. I could not say. After the hydrant left the shop I did not know where it was going to.

Cross-int. 187. What became of the pattern from which that case was made?

Ans. I could not say; I think they went to Chicago or Detroit. They may have gone there. There were some patterns went there.

Cross-int. 188. Is it your best recollection that those patterns went to Chicago or Detroit?

Ans. It is, to my best recollection.

Cross-int. 189. Was that casing cast in one piece?

Ans. I could not say positively.

Cross-int. 190. What became of the pattern of the elbow which belonged to that casing?

Ans. I suppose the whole pattern went complete.

Cross-int. 191. Do you know why the casing was changed so as to be separate from the elbow?

800 Ans. I have a very indistinct recollection of this case and elbow being connected with one another. The alterations that they were making at that time—sometimes the alterations which they would make in the patterns would be made so that the foundrymen could cast them to the best advantage.

Cross-int. 192. Can you explain why your recollection to this is indistinct?

Ans. There was several alterations going on at the time, and I had nothing to do with the alterations; all I had to do was to fit up work after alterations were made in the patterns.

Cross-int. 193. Do you remember fitting up those hydrants of which you speak—I mean from the patterns which you think went to Chicago or Detroit?

Ans. I don't know as I fitted them wholly up; part of the work I done, such as nozzles, stuffing-boxes, valves, waste-valves.

Cross-int. 194. Are you uncertain whether you ever saw a drawing, model, or casting complete in which the casting was permanently attached to the elbow at that factory?

Ans. I am not positive, but I think I did see one, and saw a casting there. I think it was one of the first castings of the hydrants we made. I think I did see a drawing, too, previous to the casting being made. The model, I think, was with the elbow connected with the case. Mr. Bramwell fitted up the model himself.

Cross-int. 195. Was that the first drawing of the casing you ever saw there?

Ans. I saw a drawing of the casing a year previous to that—a drawing of a casing of a screw-hydrant.

Cross-int. 196. How do you know that you saw the drawing of the other casing a year previous to this?

Ans. I can't fix it in any other way excepting that year I was just

attaining twenty-one years; instead of being an apprentice I was getting to be a journeyman, just out of my time.

Cross-int. 197. Are you certain that you were a journeyman or an apprentice at that time you saw that drawing?

Ans. I was an apprentice, being four or five months of being a journeyman.

Cross-int. 198. What connection was there between seeing that drawing and being an apprentice, and being within four months of your majority?

Ans. None; more than any other young man in getting out of his time; he hardly ever forgets it.

Cross-int. 199. Forgets what?

Ans. Forgets the last year of his time.

Cross-int. 200. Can you give any reason why this was four months before your time expired or one month or ten months?

Ans. The reason was that on the 21st December, 1855, I was twenty-one years of age. It might have been six months before that when I saw them. I mean six months before I was twenty-one years [of] age.

Cross-int. 201. Did the events which happened after you became a journeyman at once make a less impression on your mind than those which happened immediately before?

Ans. They did not make a less impression, but made a greater impression as I got more means, better pay.

MILES T. CONNOLLY.

Attest: R. E. STILWELL, *Examiner.*

801 *Deposition of William Stevens.*

NEW YORK, *March* 2, 1876.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for the defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is William Stevens; my age is forty-five years; my residence is 278 Stanton street, New York, and am a machinist and manufacturer of stop-cocks and fire-hydrants, and am of the firm of Stevens & McLean.

Int. 2. Were you ever in the employment of Samuel P. Ayres, now deceased?

Ans. Yes, sir.

Int. 3. What years were you with him?

Ans. From the fall of 1847 to 1871.

Int. 4. What were your duties there from 1854 to 1860 or thereabouts?

Ans. Putting hydrants and stop-cocks together.

Int. 5. Did you have anything to do with hydrant repairs? And, if so, state what.

Ans. I did; new rods, valves, valve-seats, caps, heads, and catcher-rollers.

Int. 6. Were there any hydrants known in Mr. Ayers' place while you were there by the name of patent hydrants?

Ans. There was.

Int. 7. Will you look at the model, Exhibit J, which has been produced and testified to by Mr. Connolly, and state how it compares with hydrants which were made at Mr. Ayers' place and known there as patent hydrants?

Ans. It is similar.

Int. 8. Do you know what Exhibit K is? And, if so, please state.

Ans. That is a bend or elbow of a patent hydrant.

Int. 9. Where did this pattern, Exhibit K, come from?

Ans. It came from Mr. Sanders' foundry, in 19th street.

Int. 10. Do you know anything about its history? Was it ever at Mr. Ayers' place or used in his business?

Ans. Yes, sir; to make the casting for the bends of the patent hydrants.

Int. 11. Were there any hydrants made at Mr. Ayers' place while you were there that were known there by the name of patent hydrants, except those which were similar to the model Exhibit J?

Ans. No, sir.

Int. 12. About how many such hydrants do you remember to have been made there and set up?

Ans. I should say about fifty, more or less.

Int. 13. Was there any stamp on these hydrants; if so, where?

Ans. Yes, sir; the first one made was "Patent applied for, 1856," afterwards "Patented 1857."

Int. 14. Are there any of these patent hydrants now in use in the city of New York; if so, will you name the places where they are and how they are stamped?

Ans. Yes, sir. There is one in Chambers street, opposite the courthouse, marked "Patented 1859;" one in Avenue C and Third street marked same way; one in the Fifth avenue "Patent applied for, 1856." There is a great many more around in the city, but I can't name the locations.

802 Int. 15. Did you hear the testimony of Mr. Connolly as to the way in which the cylindrical cases of those patent hydrants were made in two parts lengthwise of the cylinder and attached together and to the hydrant stock, including the seating of the hydrant stock on a washer between it and the elbow flange?

Ans. Yes, sir.

Int. 16. Is his description of these matters correct, according to your recollection?

Ans. Yes, sir.

Int. 17. Mr. Connolly has testified in regard to a screw-joint hydrant which was made and put in use by Mr. Ayres for the city of New York before the patent hydrants were made. Do you remember this screw-joint hydrant?

Ans. Yes.

Int. 18. Will you look at the drawing, Exhibit M, and say how that compares with this screw-joint hydrant as to the construction

and arrangement of those parts which the drawing purports to represent?

Ans. To the best of my knowledge, I don't think there was any leather washer at all. In other respects it is correct.

Int. 19. Did the case of this screw-joint hydrant run up and stop under a flange on the hydrant-stock above the ground line?

Ans. Yes, sir.

Int. 20. Did it come chock up to that flange or was there any space between?

Ans. There was a space of about a quarter of an inch.

Int. 21. What difficulty, if any, was there found with this hydrant?

Ans. When they got it out and wanted to return it you could not catch the thread.

Int. 22. If you did catch the thread and screwed the stock home, how was it about the position of the nozzle?

Ans. The nozzle would stand up the street and wouldn't stand on a line with the feed-pipe from the main, and the water would run on the sidewalk.

Int. 23. Have you known any other hydrants of other make than Ayres', in which the hydrant-stock was connected with the elbow of the main by a screw-joint?

Ans. Yes, sir.

Int. 24. Whose hydrants were those?

Ans. Race & Mathews'.

Int. 25. State all that you know, if anything, in regard to objections found in the Race & Matthews hydrants by reason of those screw connections—what you have done and what you have seen about it.

Ans. It was about ten years ago. There was an advertisement for the city of New York for stop-cocks and hydrants, and about seventy-five of Race & Mathews' hydrants were put down for the city. I had one down at the shop, and it took six of us to get it apart to get the hydrant out from the elbow. In getting it back I could not get the nozzle on a line with the elbow. The men on the repairs could not get them in or out. Summer before last I was up to Yonkers, the day after the fire. I saw them digging out the hydrant, case and all—the same style of hydrant on the top as Race & Matthews', having the name of Woods' hydrant, of Philadelphia. In Jersey City they had the same complaint with the same kind of hydrants.

Int. 26. Does Woods, of Philadelphia, make what is known as the Race & Matthews hydrants?

803 Ans. I believe he does.

Int. 27. You spoke of a Race & Matthews hydrant you had down at the shop, and it took six of you to get the hydrant out from the elbow. Had that been in the ground?

Ans. No, sir.

Int. 28. As to what you saw them digging out at Yonkers, the hydrant, case, and all; did they dig out the elbow also?

Ans. I don't know, sir; I saw them digging all around the case.

Int. 29. Have you any means of knowing whether any of these seventy-five Race & Matthews hydrants, which you say were put down about ten years ago, were taken up afterwards?

Ans. Yes, sir; I had occasion to go up to the corporation yard at the foot of 24th street, and saw them there, broken up. The estate of S. P. Ayres done all the repairing of the stop-cocks and hydrants for the city, and I never repaired one of the Race & Matthews hydrants while I was foreman for the estate.

Adjourned.

THURSDAY, *March* 9, 1876.

Int. 30. You say in your eighteenth answer, speaking of the drawing Exhibit M, that it correctly represents the screw-joint hydrant as far as it goes, but that you don't think there was any leather washer at all. What was there, if anything, corresponding to the parts marked *b* in the drawing?

Ans. A grummet, a piece of hemp packing wrapped around the screw part, and white leaded.

Int. 31. Where was the grummet when the hydrant was screwed down?

Ans. It was between the flange of the hydrant and the flange of the bend.

Int. 32. In your twenty-ninth answer, speaking of the seventy-five Race & Matthews hydrants, or some of them, which were put down about ten years ago and afterwards taken up, you said that you had occasion to go up to the corporation yard at the foot of 24th street, and saw them there broken up. Can you state about how long this was after they were put down?

Ans. I should say about three months.

Int. 33. How many of those hydrants do you think that you saw at the corporation yard broken up?

Ans. Fifteen or more.

Int. 34. Were the elbows or bends of these hydrants there with the broken-up work?

Ans. Yes, sir.

Int. 35. As the work lay in the broken-up condition, were the elbows or bends, or parts of them, separate from or attached to the hydrant bodies?

Ans. The bends were broken from the hydrants.

Int. 36. Did the appearance of the wrecks show how the bends had been taken from the main? If so, how were they?

Ans. The feed-pipe which the bends were attached to was cut off about two feet from the sidewalk.

Int. 37. You say that the bends were broken from the hydrants. I wish particularly to know how it was about the screw-joint by which the hydrant and bend were connected together. As you saw this wreck, had the hydrants and bends been unscrewed, or
804 did they remain screwed together? Or if they had been separated otherwise than by unscrewing one from the other, how had that been done?

Ans. They had been separated by breaking with a sledge-hammer, not by unscrewing,

Int 38. How did the construction of those hydrants compare with the hydrant shown in the Race & Matthews patent, No. 96959?

Ans. It was similar to the drawing of that patent.

Int. 39. You speak of seeing fifteen or more of those hydrants at the corporation yard broken up. Did you see them all at one time or at different times?

Ans. At different times.

Int. 40. Did you ever see a hydrant constructed like that shown in the Race & Matthews patent reissue, April 30, 1872?

Ans. No, sir.

Int. 41. Can you produce or identify one of the Ayres or Bramwell split-case hydrants, such as you have testified about, as made in and after 1856, as represented by the model Exhibit J?

Ans. Yes, sir; there is one.

The hydrant referred to is put in evidence, consisting of four parts, marked, respectively, N^1, N^2, N^3, N^4.

Cross-examination by Mr. HARDING, of counsel for complainants:

Cross-int. 42. Did you ever see a model, drawing, or hydrant at Ayres' factory similar to drawing Exhibit H, annexed to the Bramwell patent?

Ans. Yes, sir.

Cross-int. 43. What did you see there like it?

Ans. The top part, from the sidewalk up.

Cross-int. 44. Did you ever see a drawing, model, or hydrant like the rest of that sketch there?

Ans. Yes, sir.

Cross-int. 45. Which did you see there like the rest of that sketch—the model, drawing, or hydrant?

Ans. The drawing.

Cross-int. 46. Did you ever see a hydrant or model like the rest of that sketch?

Ans. Yes, sir; with this difference—the case was in two parts.

Cross-int. 47. Do you now refer to a model or to a hydrant as being there?

Ans. To a hydrant.

Cross-int. 48. Did you ever see a model there?

Ans. I think I did.

Cross-int. 49. How was that model made?

Ans. I think it was in two halves.

Cross-int. 50. Was your attention in any way directed to this model or to this drawing when you first saw it; and, if so, how, and by whom?

Ans. It was by Mr. Bramwell; he drew my attention to the drawing of this hydrant (pointing to patent Exhibit H).

Cross-int. 51. What did he say about it at the time he called your attention to it?

(Objected to.)

Ans. I disremember.

Cross-int. 52. Can you remember any circumstance connected with his showing it to you?

Ans. About the time he got up the screw hydrant he said he was going to get up another one with less expense.

805 (Answer objected to by respondents.)

Cross-int. 53. Is that the only circumstance connected with his showing you the patent Exhibit H which you can recall?

Ans. That is all.

Cross-int. 54. Did he state what his object was in making a model like Exhibit H?

(Objected to.)

Ans. No, sir; not that I can remember.

Cross-int. 55. Did you learn from him anything about its going to be patented?

(Objected to.)

Ans. No, sir.

Cross-int. 56. Did you know why the hydrant was called a patented hydrant at your shop?

Ans. No, sir; not until I saw "patent applied for" on it.

Cross-int. 57. Do you know what kind of a hydrant was taken up when the screw-hydrant was put down?

Ans. Yes, sir.

Cross-int. 58. What kind?

Ans. A spigot-hydrant.

Cross-int. 59. Describe what you mean by a "spigot-hydrant."

Ans. Take flange off of Exhibit N and make the spigot longer, it would be a spigot-hydrant.

Cross-int. 60. Did you see that screw-hydrant put down?

Ans. Yes, sir.

Cross-int. 61. Did you see it taken up?

Ans. Yes, sir.

Cross-int. 62. Why was it taken up?

Ans. The valves got out of repair.

Cross-int. 63. What was done with it?

Ans. It was taken to the corporation yard.

Cross-int. 64. What became of it then?

Ans. It was broken up.

Cross-int. 65. Did you see it broken up?

Ans. No, sir.

Cross-int. 66. Why do you say it was broken up?

Ans. The gate-keeper in the yard told me so.

Cross-int. 67. When did you ask him, and how came you to do so?

Ans. I was up there one day afterwards looking at a lot of old hydrants, and he told me Mr. Flanders ordered it to be broken up.

Cross-int. 68. How long ago was it you were there?

Ans. In 1847.

Cross-int. 69. How do you fix the date when you were there?

Ans. I came to this country in August, 1846. I went to work up to Yonkers the May following; came back in the fall and went to work for Mr. Ayres.

Cross-int. 70. How long was this screw-hydrant there in the ground before it was removed and taken to the yard?

Ans. Inside of a year. It might be a year, and it might be less.

Cross-int. 71. Had you anything to do with the putting down of hydrants?

Ans. No, sir.

Cross-int. 72. Was it part of your business to take them up?

Ans. No, sir.

Cross-int. 73. What had you specially to do with this screw-hydrant?

Ans. Put it together.

806 Cross-int. 74. At the time of putting it together can you recall no other circumstance connected with this hydrant than the one already stated by you in connection with the drawing in the fifty-second answer, where you say "about the time he got up the screw-hydrant he said he was going to get up another one with less expense."

Ans. No, sir; I don't think I can now.

Cross-int. 75. Can you recall any circumstance connected with the first manufacture of a hydrant like Exhibit N?

Ans. No, sir.

Cross-int. 76. How do you fix the length of time that screw-hydrant was down?

Ans. By memory. I think it's about that time. I lived around there and worked around there.

Cross-int. 77. Is that the only way you can fix it?

Ans. It was put in in 1855 and was taken out by Croton department before Mr. Ayres commenced building his patent hydrant in 1856.

Cross-int. 78. What connection was there between the taking of this out and the building of the patent hydrant that you can now remember?

Ans. We put in the screw-hydrant in warm weather, and then it was very warm weather again when we were building the patent hydrant.

Cross-int. 79. Is that the only connection between the taking up the one and the building of the other which you can now recall?

Ans. Yes, sir.

Cross-int. 80. Who made the drawing Exhibit M, and when was it first shown to you?

Ans. Mr. Carr made it last Thursday evening and showed it to me at that time. Mr. Carr is superintendent of the Boston Machine Company.

Cross-int. 81. When were you first spoken to about the screw-hydrant between the time it was taken up and the present time?

Ans. Last summer.

Cross-int. 82. Who spoke to you about it then?

Ans. Mr. Carr spoke to me about the patent hydrant, and I told him about this loose jacket—I mean the screw-hydrant.

Cross-int. 83. With whom have you conversed about it since?

Ans. With Mr. Carr.

Direct examination resumed by Mr. CAUSTEN BROWNE:

Int. 84. Was there any rough sketch made of the screw-hydrant by anybody here in the examination-room before the neat sketch, Exhibit M, was made by Mr. Carr?

Ans. Yes, sir.

Int. 85. Who made that rough sketch?

Ans. Mr. Carr.

Int. 86. Under whose directions, if any one's, did he make that first rough sketch?

Ans. I think Mr. Connolly and myself.

Int. 87. Did you see Bramwell' Patent Office model, which he sent to Washington for a patent in 1856?

Ans. Yes, sir.

Int. 88. You have spoken of spigot-hydrants made at Ayres' place; were those the hydrants in general use throughout the city, and which, when in the ground, had wooden cases around them?

Ans. Yes, sir.

807 Int. 89. Did you help to put together the first hydrants like Exhibit N which was made at Mr. Ayres' place?

Ans. Yes, sir.

WM. STEVENS.

Attest: R. A. STILWELL, *Examiner.*

Deposition of Miles T. Connolly (Recalled).

Int. 1. Can you produce or identify one of the Ayres or Bramwell split-case hydrants, such as you have testified about, as made in and after 1856, as represented by the model Exhibit J?

Ans. Yes, sir; that is one (pointing to N^1, N^2, N^3, N^4).

Cross-examination by Mr. HARDING:

Cross-int. 2. What kind of hydrant was removed when the screw-hydrant was placed in front of the factory?

(Objected to as not opened by the direct.)

Ans. I think it was one of those hydrants with iron top, without case.

Cross-int. 3. Can you be definite about this hydrant?

(Same objection.)

Ans. No more than that this was the style of hydrants we were making when we got up this screw-hydrant.

Cross-int. 4. What became of the hydrant by which the screw-hydrant was replaced?

Ans. I couldn't say; it may have been taken out years afterwards, and it might have been taken out while I was working there.

MILES T. CONNOLLY.

Attest: R. E. STILWELL, *Examiner.*

Deposition of Henry B. Renwick.

NEW YORK, *March* 9, 1876.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. Have you examined an official copy of the reissued patent, April 30, 1872, to S. R. C. Matthews, assignee of Race & Matthews, and of the patent granted Nov. 16, 1869, to Race & Matthews, both being for improvement in hydrants?

Ans. I have.

Int. 2. Have you read the deposition of Mr. Hervey Waters, made on behalf of the plaintiffs in this case?

Ans. I have.

Int. 3. Do you understand the construction of the hydrants made by the defendants which are alleged in this suit to be an infringement of the said patents?

A. I do.

Int. 4. Will you please to state in regard to each of these two patents what you understand to be the substantial construction and operation of the hydrants described and shown in them, respectively, and referred to in the first, second, third, and fifth claims of the reissue and the single claim in the patent of 1869?

Ans. The hydrant shown in the reissue is a hydrant with a puppet main valve of peculiar construction and with an annular valve mounted on the same stem as the puppet-valve in such man-
808 ner that when the main valve is completely closed the waste-valve is completely open. This hydrant proper to which these valves are applied has a screw cut upon the bottom of it, which is screwed into a corresponding nut chased out in the top of the elbow or bend, and the reissue states that it may be attached to this bend "in any other suitable manner." Outside of the hydrant proper there is a case which rests upon the upper flange of the elbow, and the upper end of this case lies below a flange attached to the hydrant proper, the construction being such that the case cannot be lifted or hove by frost unless it carries with it both the hydrant and the bend, this result being due to the fact of the screwing of the hydrant into the elbow, so that when screwed together they in fact form one piece, and to the further fact that the case is enclosed between a flange on the elbow and a flange on the hydrant proper in such manner that the case cannot be lifted without lifting the hydrant, and the hydrant cannot be lifted without lifting the bend, so long as the hydrant and bend are screwed together. This case has a projecting lip at its lower end, clearly shown in Figs. 1 and 2 of the reissue. The reissue states in substance that the invention consists, first, in the employment of a loose or removable case or jacket

around the body of the hydrant, whereby both the hydrant and case, or the hydrant alone, may be detached and removed or withdrawn, and also that the annular chamber of confined air between the jacket and stock or hydrant proper forms a superior non-conductor for the protection of the hydrant from freezing. I have been familiar with the construction of hydrants for many years, and they are, as far as my knowledge extends, usually so made and set in the ground that the valves are below the frost line, and they usually have, as the hydrant of the reissue has, a waste-valve, so that the water is all emptied out of the hydrant proper shortly after the closing of the main valve. In such case the use of the jacket to prevent freezing is immaterial, and it becomes of use solely as a means for preventing the earth from caving into the elbow pipe when the hydrant is removed, if it can be so removed, and as a means for preventing the earth from hugging round the hydrant proper, and thus permitting its removal when detached from the elbow without the necessity of digging round the hydrant. The hydrant shown in the drawings of this patent could be removed out of the ground without digging down to the elbow if it could be unscrewed from the nut in the elbow. From what I have seen of cast iron which had been for some months or years under ground, I have great doubts whether this screw could be unscrewed. After the hydrant was taken out, if it could be, then the case could be removed from the elbow by digging around the case to the bottom of it, so as to free the lip and to remove the earth which hugs around the case. The patentee seemed to have been of the opinion that he was the first to devise a hydrant with a case, which case was not fast to or was detachable from the elbow; and, as I understand it, the invention referred to in the first claim is a protecting case or jacket, E, separate and removable from the elbow D, irrespective of the fact whether that jacket rests upon the elbow or upon the ground; and the court may construe it, so far as I know, that this jacket E is at its upper end to set under a flange with a rim around the flange, so that the jacket, as stated in the patent, forms, with the hydrant, an annular chamber which confines air between the jacket and the stock or hydrant. The invention referred to in the second claim is, as I understand it, the same invention, except this limitation, viz., that the removable jacket must be of such length that it shall rest on the elbow or the arm D, as the patent calls it, "at or near the junction of the hydrant-stock
809 therewith." The main valve G of this hydrant is a valve of peculiar construction, attached in a peculiar way to its valve-rod. It operates to shut and open the waste passages in the same general way that puppet-valves do, and this valve G, in combination with the rod, is the subject of the fourth claim. The waste-valve of this hydrant B′ is also of peculiar construction. It is called an annular valve in the patent, and is in fact one, this valve, as a whole, being like an ordinary wheel with two spokes only and a wide felloe, the felloe fitting the bore of the hydrant and the valve-stem passing through the centre of the hub, and being fastened thereto. The outer periphery of this annular valve can be moved up and down, in consequence of its connection with the valve-stem,

so as to open or close the waste passage through the hydrant-stock, and, in consequence of the periphery of the valve fitting the bore of the hydrant, this annular valve steadies the main valve when the latter is off its seat.

Now, the third claim refers to a combination, viz., that of the annular yoke or valve B′ with the rod C (which is fastened to both valves) and the valve G (which is the main valve of peculiar construction before referred to by me), in such manner that the annular yoke B′ shall steady the valve-rod, shall center the valve G, and prevent any vibration of the rod or valve G when the hydrant is open. Now, these parts cannot perform this duty unless the face of the annular valve fits against the inner surface of the hydrant bored out to receive it, so that the annular valve can slide thereon, and it therefore appears to me that the hydrant itself, so constructed as to guide the annular valve, is one element of the combination referred to in this third claim. I ought, perhaps, to have said before that the annular valve must be annular and provided with spokes and a hub in order that it may be attached to the valve-stem, and in order that the water passing upwards through the hydrant may pass inside of the annulus or ring which forms the valve. If this valve, instead of being an annulus, were a solid disk extending to the valve-stem, then the valve and whole hydrant would be useless, for the reason that no water could pass through it, even when the lower valve was open. It appears to me that this third claim is intended to cover the construction above described, whether there be or be not leak openings *j*, which are small holes extending from the bore of the hydrant proper to the outside thereof, and in such case the annular valve B would not act as a valve, but merely as a steadiment to the lower or main valve of the hydrant. As I understand it, the fifth claim is to the combination of the same elements which are referred to in the third claim, with the additional element of the leak opening in such manner that the annular valve not only serves to steady the main valve and the valve-rod, but also to shut the leak openings when the main valve is open, so that water will not run to waste after it is fully open, and to uncover the leak openings when the main valve is shut, so that after the main valve is shut the water contained in the hydrant proper above the main valve may run out, thus obviating any damage which might arise from such water being frozen. The patent to Race & Matthews, November, 1869, also describes a hydrant with a case. This case, as I understand it, is an improvement—and, in my opinion, a great one—upon that described in the reissue. This patent states that "the heaving by frost is a constant source of trouble and expense in other hydrants, by causing the elbows at the bottom connecting with the main to break; also throwing the hydrant itself out of position."

This, in my opinion, is precisely what would occur in the use
810 of the case described in the reissue of 1872, before referred to.

The patent of 1869, although it does not say so, very clearly shows a construction in which the case is loose from the bend or elbow, and is not held down either by the elbow or the hydrant. Consequently, it is free to rise when hove by the frost without car-

rying with it the hydrant or the elbow, and when protected by such a case there is no danger of breaking the elbow. The patent states that "by this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant." Another peculiarity of this case is that its upper end extends above the ground, so that it can be driven back to its place without difficulty after it has been thrown up by the frost. The patent states that the lower end of the case preferably shuts into a flange of the elbow, but I do not understand that this is a characteristic of the invention, and I do understand that the invention referred to in the claim is a case around the hydrant, not attached to the elbow or bend, extending above the ground and outside the main body of the hydrant, and not impeded in its upward motion by any attachment, either to the elbow or the hydrant, or by any flange or ears attached to the hydrant above the case, so as to prevent its motion when hove by frost, and I understand that this invention may be found even when the lower end of the case is not supported in the precise manner described and shown in the drawing.

Adjourned to 11 a. m., 10th inst.

FRIDAY, *March* 10, 1876.

Int. 4*a*. Have you read or heard the testimony adduced on behalf of the defendants relating to the wooden-case hydrants illustrated by the model, Defendants' Exhibit A; the Novelty works copper hydrants, illustrated by the drawing, Defendants' Exhibit B; the Camden hydrants, illustrated by the model, Defendants' Exhibit C; the St. Louis hydrants, illustrated by the drawing, Defendants' Exhibit number C; the Ayres hydrants, illustrated by the model, Defendants' Exhibit J, and the Ayres hydrant, illustrated by the drawing, Defendants' Exhibit M?

Ans. I have read it all, and also heard the testimony of Stevens and Connolly.

Int. 5. Will you compare these several hydrants (alleged to be prior in date) with those described and represented in the plaintiffs' reissue of 1872 and their patent of 1869, respectively, and state in what respects you find their construction and operation to be embodied in either of said prior hydrants?

Ans. In regard to the wooden-case hydrant represented by Defendants' Exhibit A, I will state that I have been familiar with the outside of those hydrants and their cases for many years, and have seen the cases after they have been lifted by frost. I have seen those hydrants lying in the street after they have been taken up, and I know that Exhibit A is incorrect in proportion in two points, namely, that in it the hydrant proper below the ground and the case are nothing like as long as they are in actual practice, and this variation in proportion makes the tapering of the case much greater in proportion than it is in actual practice. This hydrant has a case which rests at one part thereof upon the elbow at the bottom, and the upper part of the case fits closely around a flange on the body of the hydrant at about the surface of the ground, and when the hydrant is set this case extends above the surface of the

ground. It makes a tight air-jacket around the hydrant proper,
and the case is not in any way attached to or held down
811 by either the hydrant or the bend; consequently the case can
be hove and lifted by the frost without in anywise affecting
either the hydrant or the elbow. This case is made of wood—is, in fact a barrel; and so long as the hydrant is in place, attached to the bend, it cannot be lifted entirely off the hydrant, owing to the projection of the nozzle, to which the hose is attached. In all these respects it is identical with the case described in the patent granted to Race & Matthews, No. 96959. This patent does not state of what material the case described in it is made, but does talk considerably about the graceful outline of the case and the general symmetry of the parts; but I do not think the form of parts resulting in this symmetry and graceful outline is an essential characteristic of either the hydrant or the case, and I have before stated that the invention is not confined to a case which shuts into a flange on the main elbow, nor is it confined to a case which rests upon the flange on the elbow, or the elbow itself. If the court should construe the first two claims of the reissued patent of 1872 to include a case or jacket which is separate and removable from the elbow *d*, and either resting on the earth or supported on the arm *d*, which is the elbow at or near the junction of the hydrant-stock therewith, and without reference to said case fitting under and being held down by the flange *s* on the hydrant proper, as represented in the drawing of the reissue, then the hydrant represented by Exhibit A would exhibit the same invention as is referred to in those two claims.

(The counsel for the respondents here hands to the witness a drawing marked B, which is understood by said counsel to be a correct copy of the drawing, Exhibit B, that drawing being in court at Boston, and requests the witness, so far as he has occasion to refer to the drawing, Exhibit B, to refer to the drawing (B) upon the assumption that it is a correct copy.)

The Novelty works copper hydrant had a case forming a separate and removable part from the elbow. It surrounds the body of the hydrant, and extends up above the ground line, where it has bolted to it a disk or diaphragm with a hole in it, which disk closely surrounds the body of the hydrant. Above this disk is an extension of the case for the protection of that part of the hydrant which is above the ground, which I understand, both from the drawing and the testimony, was a tube made of comparatively thin copper. This case is so constructed and attached that it cannot be lifted by frost without lifting both the hydrant and the elbow, and the construction as a whole is such that if the screw can be unscrewed from its nut when corroded (and it probably could be, as the screw is cut on a piece of brass, and the nut is chased in another piece of brass secured in the top of the iron elbow) then the hydrant can be taken out, leaving the case in the ground. The construction is also such that the case can be taken out of the ground, leaving the elbow in place, after the earth has been dug out down to the top of the elbow. In these respects the case of the Novelty hydrant is substantially the

same as the case represented and described in the reissue of 1872, and I make this statement with full knowledge that the case is bolted to the elbow by screws, which prevent it from being hove by frost without carrying the elbow and hydrant with it.

The construction of the hydrant-case of the reissue, as I have before said, is such that this same difficulty occurs in its operation, and it cannot be removed from the ground without digging down to the bottom of it. When the earth is removed from the lower end of the case of the Novelty works hydrant the bolts which attach the case to the elbow can be removed, so that, in the words
812 of the reissue, "the case is separate and removable from the elbow;" and I do not think that I could evade the reissue by putting a bolt through the ring of the elbow into the case, which bolt would have to be removed before the case is lifted from the elbow. As in this Novelty works hydrant the case cannot be hove by frost without lifting both hydrant and elbow, it is clear that this Novelty works case is not the case of the patent of 1869. If the bolts which fasten the case to the Novelty works hydrant were left out then the case of the Novelty works hydrant would be the same and act substantially in the same way as the case or jacket of the patent of 1869. The Camden hydrant, model Exhibit C, shows a case which is separate and removable from the elbow, and is free to be hove by the frost without disturbing either the hydrant proper or the elbow. I am not informed by the model Exhibit C or by the testimony exactly upon what the lower end of the case rests. It appears to rest on a lug cast on the hydrant itself. This case rises above the ground, and is surmounted by another case, which protects the valve-rod and that part of the hydrant which is above ground. If the court should hold that the first claim of the reissue of 1872 is irrespective of the flange S, which holds the case E down and confines the air contained in the case E, then this hydrant would exhibit the invention referred to in the first claim of this reissue. This hydrant, model C, does not exhibit the invention referred to in the second claim of this reissue, because the case of model C does not rest upon the elbow at any time; whereas, owing to the peculiar construction of the hydrant of the reissue, the case must at all times, when in use, rest upon this elbow, because the case is held down onto this elbow by the flange on the hydrant. As I have before stated, I understand the invention referred to in the claim of the patent of 1869 to be irrespective of the manner of supporting the lower end of the case, and I now say that there is not a single expression in the patent which describes the top of the case as closely surrounding the body of the hydrant so as to confine the air in the annular chamber formed by the case, although the drawings do show the case as coming pretty near to the body of the hydrant, there being an annular space between the top of the case and the hydrant, which, in a full-sized hydrant, as near as I can judge by eye, would be about $\frac{3}{16}$ of an inch in width all around the hydrant, so that I do not understand that a tight fit of the case and hydrant is a characteristic feature of this invention, and I do understand that the distinguishing characteristics of the case are that it

is so arranged that it can be hove by frost without lifting the hydrant, and when in place around the hydrant its top shall be above ground. If I am correct in this judgment as to the characteristics of this invention, then the case of the Camden hydrant, model Exhibit C, is substantially identical with that referred to in the claim of the patent of 1869. The St. Louis hydrant, illustrated by drawing Defendants' Number C, is a hydrant provided with a case resting upon the flange of the elbow and not attached to either the elbow or the hydrant.

This case or jacket, therefore, can be hove by frost without moving either the elbow or the hydrant, and it extends above the ground so that it can be driven down after it has been hove. On top of this case is placed a secondary case to protect that part of the hydrant and valve-stem which are above the ground. In the St. Louis hydrant the hydrant proper could be removed, leaving the case in place in the ground by lifting off the top of the case and inserting a socket or watch-key wrench over the nuts, which I have marked "R R" in the drawing. The bolts on which these nuts are
813 placed are square where they pass through the flange on the elbow; therefore by turning the socket-wrench the nuts could be unscrewed and the hydrant removed, leaving the case in the ground, and preventing the earth from caving in. After the hydrant was removed the case could be taken out, after it had been dug around so as to loosen the hold of the earth around it, leaving the elbow still in place, or the case could be removed at the same time with the hydrant. This case has no lip on it, like that shown in the drawings of reissue of 1872, or in the drawings of the patent of 1869, and could be removed without digging aroumd it, if sufficient power could be applied to lift it, so as to overcome the grip of the earth upon the outside of the case. This case has the distinguishing peculiarities, as I understand it, of the case referred to in the claim of the patent of 1869, and also those of the case referred to in the first two claims of the reissue of 1872, if the court shall so construe these claims to be irrespective of the flange and ring S which holds the case of that reissue down and confines the air within the casing, preventing the case from being lifted by frost unless it carries the elbow and hydrant with it. The Ayres hydrants, illustrated by the model, Defendants' Exhibit J, do not show a case which can be hove by the frost without lifting the hydrant and elbow, and do not exhibit the invention referred to in the claim of the patent of 1869. Those Ayres hydrants did have a hydrant proper with a flange and ring upon it above ground, like the flange and ring S in the drawings of reissue, 1872. They did have a case, the upper end of which rested under this flange and within this ring, which case was made in two pieces, was an independent case, and separate and movable from the elbow, and the case, with the ring and flange, formed, in the words of the reissue, "an annular chamber of confined air between the jacket and strob or hydrant proper." In the Ayres hydrant the hydrant itself could be lifted out, leaving the case in the ground, with ease and facility, and the hydrant could be easily replaced in the case after it had been re-

paired, owing to the fact that the bolts which confined the hydrant to the elbow are above the ground, and that there is no screw at the bottom of the hydrant. The case of this Ayres hydrant could also be dug around, and after the earth had been removed it could be removed from the elbow and taken out, leaving the elbow in place. In order thus to remove it the two parts of the case would have to be unbolted so that the flange on the lower part of the case could be separated from the flange on the elbow. The construction of the case in two pieces in this hydrant, so that its flange may underlie that of the elbow, is rendered necessary by the fact that the hydrant proper is held down upon the elbow by the case and bolts, the bolts and the case acting together as hook-headed bolts to hold the hydrant down. The differences between this case and the case of the reissue of 1872 are differences which measure the superiority of the construction of Ayres hydrant, as a whole, over that of Race & Mathews of 1872 reissue, as these differences permit the screw of the reissue to be dispensed with, and do away with all the evils consequent upon the use of the screw. The case, however, as a case, performs every duty of the case or jacket E of the reissue of 1872, and is separate and removable from the elbow, and is confined by the hydrant and elbow, so that the case cannot move without moving the other two, and, in my opinion, exhibits the invention referred to in the first and second claims of reissue of 1872. The Ayres hydrant put in front of Ayres' shop, and illustrated by drawing Defendants' Exhibit M, was, as I understand it, in all respects substantially identical with the hydrant described and represented in the drawings of the reissue, 1872, except in the
814 construction of the main valve and the waste-valve. In this Ayres hydrant the case was held between the flange of the elbow at the bottom and the flange on the hydrant at the top of the case; consequently, the case could not be hove by frost without lifting both the hydrant and the elbow. In this Ayres hydrant the hydrant could be removed, leaving the case in place, if the screw in the bottom of the hydrant could be unscrewed from its nut, and the case could be removed with the hydrant or after the hydrant had been removed.

In my opinion, this hydrant exhibits the invention referred to in the first two claims of the reissue of 1872; but, as the case could not be hove by frost without lifting the hydrant through the intervention of the flange, and consequently lifting the elbow, this hydrant in front of Ayres' shop did not exhibit the invention referred to in the claim of the patent of 1869. None of the hydrants enumerated in the question show the peculiar main valve combined with its stem, called in the reissue of 1872 the disk-valve G, and referred to in the third, fourth, and fifth claims thereof, and none of them show the annular yoke or valve B′, either by itself alone or in combination with leak openings. The St. Louis hydrant does show arms attached to the body of the hydrant, or the hydrant itself, which arms carry a hub in their centre, through which the valve-stem passes; and this valve-stem, therefore, is prevented from vibrating and the hub and arms, therefore, in connection with the stem, steady

and centre the main valve, although the arms are stationary and cannot move with reference to the body of the hydrant. One of these arms has a leak opening or passage-way in it, leading from the cavity of the hub to a hole bored through the hydrant proper, the cavity and the hole forming a continuous passage from the centre of the hub to the outside of the hydrant proper or stock. As I understand the Race & Matthews patent, the annular valve or annular yoke B′ must be a valve which is firmly attached to the valve or yoke, which is firmly attached to the stem of the main valve, moves up and down as the main valve moves, and steadies the stem to which it is attached, and consequently the main valve, which is attached to the same stem, in consequence of the outer periphery of the annulus or ring being held so that it must move in a right line by the bore of the hydrant proper. If I am correct in this understanding, then the St. Louis hydrant does not exhibit the annular yoke of the reissue of 1872; neither do any of the other hydrants named in the question; and as none of the hydrants referred to in this question show that annular valve or yoke or the peculiar valve G of the reissue attached to its stem or rod, as described, it is my opinion that neither the Ayres, the St. Louis, the Camden, or the Novelty works hydrants contained the invention referred to in the third, fourth, and fifth claims of the reissue of 1872.

Int. 6. Will you look at the pattern marked Exhibit K, and, if you have had sufficient familiarity from practice or observation with the art of casting, explain the manner in which this pattern would be used for producing the elbow of a hydrant like Exhibit M, and state also whether the use of such a pattern implies, and, if so, why, the making of the elbow and the case of the hydrant separate from one another?

Ans. I am familiar with the art of casting from patterns. In using the pattern referred to in the question it would be moulded up in sand or loam, with the parting of the pattern in line with the dividing line between the cope and the drag of the flask. When the cope was lifted off one-half of the pattern could be removed from the cope, and the other from the drag, leaving in each
815 a cavity which would just hold half of the pattern. It will be noticed that in the pattern there are two cylindrical projections, one at each end beyond the flanges. These are core prints, and would — cavities in the sand the same as the rest of the pattern would do. A core is then prepared in the shape of these two cylinders, united together by a piece which would just fill the inside of the finished elbow. This core is then laid in the two core prints in the drag, and supported in the centre, if necessary, by an iron wire, and then the cope is put on the drag. In this way an annular cavity is left of the shape and dimensions of the required elbow, the core prints being filled by the end of the core. Melted iron is then run into this annular space, and after it is cool the plaster is taken apart and the casting taken out. Then the sand core is dug out of the centre, leaving an elbow like that which makes part of Exhibit N. This pattern is so constructed that it

would not be possible by the use of it to cast a jacket in one piece with the elbow.

Adjourned to the 11th inst., at 10.30 a. m.

SATURDAY, *March* 11, 1876.

Int. 7. Will you now state what you find in the hydrants described and shown in the plaintiffs' reissue of 1872 and patent of 1869 that is characteristic or substantial, in view of the prior hydrants you have referred to, and compare with such characteristic or substantial construction the construction of the defendants' hydrants, and state whether you find it in whole or in part in them or not, giving your reasons for your opinion, and stating, as you may find it desirable to do so for a perfect understanding of the views you mean to express, any alternative construction which any of the claims may receive?

Ans. The characteristics of the case of the patent of 1869, as I understand it, are that it shall be detached from the elbow and hydrant so as to have end play, and that it shall pass outside of the main stock of the hydrant instead of lying inside and underneath it, as it does in the reissue of 1872, and that it shall project above the ground so that any change in its position can be ascertained, and so that it can be driven back without disturbing the hydrant after it has been hove up by the frost. I have before stated that its lower end is represented as located in an annular space between what is called flange *h* in the patent (which is really a thimble) and the outside of the hydrant proper. I do not understand this to be a distinguishing characteristic of the case; and I have also stated that although no construction of that part of the case is described in the patent, the upper part of the case is in its inside bore an approximation to the outside periphery of the hydrant, so that there shall be but little chance for the outside air to circulate up and down in the annular space between the jacket and the hydrant; but I do not consider the size of this opening between the top of the case and the hydrant as essential; it certainly is not referred to in the patent, and the case would act in the same way if it were made larger in diameter at the bottom, tapering as it went upwards, and if when so altered the case stood outside of the thimble or socket *h*, and rested before it was hove by frost upon the elbow, in which case only a portion of the bottom of the case would rest upon anything except the earth. When the case of the patent of 1869 is hove by frost it rests at the bottom upon nothing, and is held in place by the grip of the earth around it. If a hydrant were in use daily in winter in a cold climate, in which case the comparatively warm water rushing up through the hydrant would warm the air
816 between the case and the jacket, there might be some use, although not much, in confining the air enclosed by the jacket, as shown in the reissue of 1872; but as hydrants are often not opened once a month, and sometimes remain shut for several months, the question whether there is or is not a little circulation within the jacket is a matter of no practical importance, as the air,

even if confined, must in a short time get down to the temperature of the earth which surrounds it. In view of the prior St. Louis hydrant and New York wooden-case hydrant and the Camden hydrant, I do not see any essential novelty in the case referred to in the patent of 1869. The defendants' hydrant has a case which rests at the bottom, before it is hove by frost, partly upon the top of the elbow pipe and partly on a flange which is on the same level with the top of the elbow pipe. This case extends above the ground, as I understand it, when the hydrant is set, and at its upper end is as far distant from the hydrant as it is at any other part, or nearly so. On top of this case is set another case which encloses a flange on the hydrant, and, with the flange on the hydrant, forms a cover, preventing to a certain extent the circulation of air in the case. If the two parts of this hydrant-case were made in one it would produce the same effects that it now does, save that access to the hook-bolts would be prevented and the hydrants could not be taken out leaving the case in the ground. In the fact that this case is composed of two pieces, it is like the Camden, the St. Louis, and the Novelty works hydrants; and when the case is considered as a whole it is substantially identical in its manner of surrounding the hydrant, in its capacity to rise and fall, and in its resting upon the elbow when driven down as far as it can be, with the New York hydrant, Defendants' Exhibit A, and with the St. Louis hydrant. The case of the defendants can rise and fall without lifting the hydrant or the elbow; and although it does not shut with a thimble, *h*, of the patent of 1869, I consider the case of this hydrant substantially identical with the case of the defendants' hydrant; and I would consider both it and the defendants' hydrant as having substantially the same case, if a piece were sawn off the bottom of the case diagonally, so that the cases only rested when fully driven down upon a small part of their circumference. The only object that I can see in their resting at all, when wholly driven down upon anything, being that such resting shall serve as a guide to show when the case is driven as far down as necessary. I have, in a former answer, stated what I believe to be the substantial characteristics of invention referred to in the first and second claims of the reissue of 1872. If the court should construe these claims as irrespective of the thimble flange S, which prevents the case or jacket from lifting without lifting the hydrant, and confines the air in the annular space between the jacket and the hydrant, then all the old hydrants exhibit substantially the invention referred to in the first claim of the reissue of 1872, and all the old hydrants except the Camden hydrant exhibit the invention referred to in the second claim of the reissue, and under such a construction by the court the defendants' hydrant would contain the invention referred to in the first and second claims. If, on the contrary, the court should hold that the thimble flange, which holds down the case so that it cannot move without lifting the hydrant and elbow, is included in the first and second claims, then the defendants' hydrant does not contain the invention, and the two Ayres hydrants and the Novelty works hydrant exhibit the invention referred to in those claims.

I have already stated what I believed to be the invention contained in the third claim of the reissue of 1872, and I do not
817 find that invention in any of the old hydrants or in the defendants' the valve and valve-stem being steadied in the defendants' hydrant by immovable arms made fast to the body of the hydrant and supporting a hub, through which the stem slides exactly as it does in the St. Louis hydrant, the same being a common way of supporting stems and the puppet-valves which are attached to them. Instances of this mode of steadying, but in a different form, are shown in Defendants' Exhibit Model C, the Camden hydrant, and in Defendants' Exhibit I, being an actual waste-valve which is both a slide and a puppet. If the court should construe this claim to include the annular yoke, whether it was movable or immovable and whether the stem was attached to and slid with the hub or was detached from and movable with respect to the hub, and should also decide that the valve G of the claim was not a valve of the specific construction described in the patent, but that the words "valve G" included any valve which would act as a puppet-valve, then the invention referred to in this third claim would be found in the St. Louis hydrant, in the Camden hydrant, represented by model C, and in the defendants' hydrant. The valve G, in combination with the rod in the manner described, is, as I understand it, the invention referred to in the fourth claim of the reissue. This peculiar valve, thus combined with the rod or stem, is not found in the defendants' hydrant nor in any of the old hydrants. In the former answer I have stated what I believe to be the invention referred to in the last claim of the reissue. If the court shall construe that claim to be limited to an annular valve moving with the rod and steadied by the bore of the hydrant, in combination with the peculiar valve G and the leak openings, then the invention referred to in this last claim is not found in any of the old hydrants or in the defendants'. If it should construe the claim in the same way, except that the valve G might be any valve acting as a puppet-valve or disk-valve, as it is called in the reissue, then the invention is not found in any of the old hydrants nor in the defendants'. If the court should construe the claim to be a combination of any valve acting as a puppet-valve with any valve acting as a slide-valve and with leak openings in such manner that when the puppet-valve was shut the leak openings were open, and *vice versa*, then the invention would be found in the defendants' hydrant and in the Camden hydrant, Exhibit C, with the enlarged valve-stone; and a combination producing substantially the same effect, by the substitution of a puppet waste-valve for a slide waste-valve, would be found in the St. Louis hydrant and in the Camden hydrant, Exhibit C, even without the enlargement of the rod. Both the hydrant of the reissue and the defendants' hydrant in this respect appear to have been based on the St. Louis hydrant. The defendants have left the stationary arm, the stationary hub, and valve-stem sliding in the hub of the St. Louis hydrant, and so altered the bore of the hub and the diameter of the enlargement of the stem (for these are the only alterations necessary) that the latter, which in the St. Louis hydrant acts as a

puppet-valve, acts in the defendants' hydrant as a slide-valve. The inventor of the hydrant shown in the reissue of 1872 has taken an opposite course. He severed the arms of the St. Louis hydrant from the body of the hydrant, applied an annulus or ring to them, secured the arms to the valve-stem so that they were moved with it instead of being stationary as before, and then bored out the body of the hydrant, so that the annulus and arms moving in this bore should steady the main valve and act as an annular slide-valve to open and shut the leak opening.

818 Cross-examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Cross-int. 8. Please refer to the defendants' model A, and state whether the motion allowed by the slots and pins in the pieces marked "wooden staves" correctly represents the direction of motion which would be given to the wooden case of the hydrant, taken as a whole, when heaved by the frost.

Ans. No; it does not. As I have before said, the case is in fact a barrel. It is impossible to represent such a barrel correctly in a section model like Exhibit A. I do not know who made the model, or under whose direction it was made, and the screws which, by going into slots, hold the pieces which represent the staves in place, permit one stave to be moved at a time, and cause the staves to approach each other as they go upwards. In practice the barrel would move up bodily, without altering its diameter, and in lines nearly parallel to the axis of the hydrant.

Cross-int. 9. In your enumeration of the characteristics of the case described in the Race & Mathews patent of 1869 did you or not take into account the reference made in the specification of that patent to the prior patent of Jan. 28, 1858, on which the reissue of 1872 was taken?

Ans. I did, on the supposition that the prior patent described the same hydrant as the reissue of 1872 does.

Cross-int. 10. Why did you not include among the characteristics of the combination of case and hydrant described in the patent of 1869 so much of the construction of the combination of case and hydrant described in the reissue of 1872 as was peculiar to it after making the improvement described in the patent of 1869, and especially the feature of a dead-air chamber?

Ans. For several reasons. First, because if I had included in the patent of 1869 so much of the construction of the hydrant described in the reissue of 1872 as constitutes the dead-air chamber I would have had a jacket which could not have been lifted by the frost without carrying the hydrant with it and, consequently, a jacket which would not act as a jacket as that of the patent of 1869 does; second, because there is no statement in the patent of 1869 that the construction must be such as to form a dead-air chamber, nor even a description that the case may be fitted so closely as to form a dead-air chamber, although, as I have before said, the drawings do show a small annular space between the hydrant and the top of the case; and, third, because there is no reference in the claim to such a

construction as will produce such dead-air chamber; and, fourthly, because the claim appears to me to be expressly drawn to cover any case which is loose, extends above the ground and surrounds the stock of the hydrant, and can be hove by the frost and driven back again, irrespective of the fact whether such case, in connection with the hydrant, does or does not form a dead-air chamber.

Cross-int. 11. The patent of 1869 has the following language: "We obtained a patent dated Jan. 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and embedded in the ground. Our present invention is an improvement upon that," etc. Was it or not compatible with making such improvement to retain the characteristic of construction which in the reissue of 1872 is called a "dead-air or non-conducting chamber around the stock of the hydrant?"

Ans. A chamber may be a non-conducting chamber without
819 being a dead-air chamber, because it will be a non-conducting chamber even if the air circulates in it. The construction in the reissue of 1872 which causes the chamber to be a dead-air chamber could not, as I said before, be retained in the hydrant of 1869 without preventing the jacket from being lifted by the frost. It was compatible with making the improvements of the patent of 1869 to make the ajr-chamber a dead-air chamber by a different construction from that shown in the patent of 1872, not only of the hydrant-stock, but of the case; and the drawing of the patent of 1859 shows a construction which would make the air-chamber a dead-air chamber if the inside of the case fitted the outside of the hydrant-stock, either above or not far below the ground.

HENRY B. RENWICK.

Attest: R. E. STILWELL, *Examiner.*

Deposition of William Bramwell.

NEW YORK, *March* 28, 1876.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. William Bramwell; age, fifty-five years; reside at Toledo, Ohio, and am a civil engineer.

Int. 2. Were you ever in the employment of S. P. Ayres in New York city; if so, when did you enter and when did you leave it?

Ans. I was. I entered with him in 1850, and, as near as I can guess, left him in 1861.

Int. 3. At what places and for how long have you lived since you left him?

Ans. Troy two years, and Toledo the balance of the time to the present period.

Int. 4. When and how did you first receive any communication relating to your appearance as a witness in this case?

Ans. Last Monday two weeks, through a newspaper advertisement.

Int. 5. While you were employed by Mr. Ayres what positions did you hold there?

Ans. Foreman.

Int. 6. Were there any hydrants made there during this time which were known as patent hydrants?

Ans. None, sir.

Int. 7. Perhaps you misunderstand the question. While you were employed by Mr. S. P. Ayres were there any hydrants made by him or at his place which were known in the shop as patent hydrants?

Ans. Yes, sir; I misunderstood the question. I thought it referred to a time before I produced my hydrant.

Int. 8. Whose patents were those patent hydrants, so called?

Ans. The Bramwell patent hydrants.

Int. 9. Look at the certified copy of patent Exhibit H, and see if that is the patent you refer to.

Ans. Yes, sir.

Counsel for the respondents puts in evidence certified copy of the caveat of William Bramwell, filed Feb. 20, 1856, marked Respondents' Exhibit O; also certified copy of the file-wrapper in the matter of the patent of Bramwell of June 9, 1857, marked Respondents' Exhibit P.

820 (Counsel for complainants objects to this introduction of the above as inadmissible and incompetent.)

Int. 10. Speaking now of the hydrants which were made during your employment by Mr. Ayres, and which were known in the shop as the patent hydrants, about how many, according to your best recollection, were made and sold there in all?

Ans. Between twenty and thirty, as near as I can form an idea now, according to my experience of the matter.

Int. 11. Please look carefully at the drawing of the certified copy of your patent, particularly at Fig. 2, and state all the differences of form or of construction which existed, if any, between what is delineated there and the patent hydrants, so called, as they were actually made. I will ask your attention particularly to the junction of the jacket or case with the bend or elbow, and also to the formation of the jacket or case at its upper end where it meets the flange of this hydrant above ground.

Ans. The hydrants were built different from this drawing. The case was in two halves, with an internal flange on the bottom, hooked under the flange of the elbow, the outer end resting on two pivots or lugs cast onto the elbow, to allow it to revolve freely in any direction; the parts of the case were bolted together with small bolts. The upper end of the case had two lugs cast corresponding with two holes in the flange of the hydrant proper at the surface of the earth, for the reception of two T-headed bolts, nuts uppermost; to gain the compression a space was left between the top of the case and the under side of the flange of the hydrant proper of half an inch, that space being considered sufficient to compress the rubber washer interposed between the foot of the hydrant and elbow flange.

A channel was formed in the case on each side of one joint, allowing for the insertion of the waste-valve (which was of the construction shown in Exhibit L).

Int. 12. Will you look at the sectional model exhibit, and say how that model corresponds, so far as regards the parts which it represents, with the patent hydrants, so called, as they were actually built?

Ans. It is a fac-simile.

Int. 13. Is there here in the room one of the identical patent hydrants of which we are speaking?

Ans. There is. (The witness points to the hydrant marked N.)

Int. 14. Will you look at the pattern marked Exhibit K, and, if you can identify it, say what it is?

Ans. To the best of my recollection that is a pattern I had made. It is the pattern of the lower bend or elbow of the hydrant—I mean the patent hydrant which I have been describing.

Int. 15. There were built at Mr. Ayres' place, I believe, in the year 1855 and for some years afterwards, what were known as pot hydrants. Were these pot hydrants furnished with cases in the shop?

Ans. No, sir.

Int. 16. Will you look at the book which is now shown to you, and which is marked Exhibit E, and state in whose handwriting the entries in that book are?

Ans. The majority of the entries are in my handwriting.

Int. 17. Towards the end of the book and embracing dates from Sept. 18, 1854, to July 12, 1856, are certain pages marked at the top "McInlay & Smith." In whose handwriting are those entries?

Ans. Mine, sir.

821 Int. 18. Did you make those entries at the dates which they respectively bear?

Ans. Yes, sir.

Int. 19. What do those entries mean—that is to say, what was it which you entered there in the course of your duties as foreman?

Ans. Castings received from the iron foundry.

Int. 20. On one of these pages I find this entry: "1856, March 15th, one patent hydrant and elbow, 465 lbs.;" what does that refer to?

Ans. One of my patent hydrants.

Int. 21. On the same page I find under date 1856, May 29, "1 P hydrant and case." What does that refer to?

Ans. It refers to a patent hydrant of mine, sir—the same patent hydrant as before.

Int. 22. To whom were these hydrants of yours which were made at Mr. Ayres' place furnished?

Ans. Principally to the Croton aqueduct department, city of New York.

Int. 23. Were any hydrants which were made at Mr. Ayres' place, while you were there, known and entered upon the books under the name of patent hydrants, except your own patent hydrants, such as you have described?

(Objected to as leading.)

Ans. None, sir.

Int. 24. How were those of your patent hydrants which were made before you actually obtained your patent stamped?

Ans. "Patent applied for."

Int. 25. At any time before making your patent hydrants which you say had the case in two parts bolted together, did you get up at Mr. Ayres' place a hydrant of different construction?

Ans. I did, sir.

Int. 26. In this earlier hydrant how was the hydrant proper connected at its lower end with the case?

Ans. The case rested on the flange of the elbow.

Int. 27. I should have asked you how the lower end of the hydrant proper was connected with the bend?

Ans. It was screwed into the bend.

Int. 28. Will you describe this screw-joint hydrant? Give us a brief and particular description of it.

Ans. The bend of the hydrant or elbow was chucked in the lathe, bored out with a V-thread cut about an inch and a half deep. The face of the elbow flange was trued up in the lathe on the lower end of the hydrant; a hub and flange was cast, a hub corresponding in length with the depth of the screw recess in the elbow. A thread was cut upon the hub matching the screw in the elbow. The under side of said flange was faced in the lathe so that when screwed together and luted with the grammet or leather washer, making a water-tight joint. A hole was dug in the ground of a proper depth required for the insertion of the hydrant. A foundation was made of loose stones or hard wood to receive the elbow, the centre of the elbow and main pipe being alike. In the next place the solid cylindrical case, slightly flanged top and bottom, was placed upon the elbow; the hydrant was then put in position, the grammet luted with white lead screwed down in its place, forming a water-tight joint, said case being half an inch shorter than the distance between the under side of the surface flange and lower side of the foot flange,
822 thus allowing ample space for compression, said case being large enough to slip over the hydrant proper if required to be done so when in position. A hole was inserted in the lower end for the escape of waste water oozing from the waste-valve inserted near the foot.

Int. 29. How many hydrants of this construction did you make?

Ans. To the best of my recollection I made two of them.

Int. 30. State in regard to either of them, if you can, where it was put down.

Ans. Opposite Samuel P. Ayres' workshop in Rivington street, New York.

Int. 31. Now, in regard to the other of the two—if there were two—state, if you can, what was done with it.

Ans. I can't say; it must have gone to the yard and probably mislaid or broken up; I never saw it afterwards.

Int. 32. What had you had to do with the construction of hydrants

in general at Mr. Ayres' place before you got up this screw-joint hydrant which you have described?

Ans. Superintended the manufacture of all the hydrants myself, so as to secure a good, reliable working hydrant.

Int. 33. What need, if any, had you observed in regard to the hydrants you were then making, or any other hydrants which you proposed to supply, in devising the screw-joint hydrants, and after that your so-called patent hydrant?

Ans. I had observed in frequent cases of fire, especially in frosty weather, hydrants damaged and broke by the concussion of fire-engines and hose-carts, etc.; the great difficulty of getting them out of the ground, frequently employing a Croton gang of workmen half a day or thereabouts to dig around the pipe of the hydrant to unscrew the holding-down bolts and nuts attached to the elbow, obstructing the passage of the street, loss of time, etc.

Int. 34. What features of the construction of your screw-joint hydrant were directed to the remedying of these objections?

Ans. The screw-joint and cylindrical outside case.

Int. 35. In what respect did the screw-joint hydrant which was set down in front of Ayres' shop prove in practice satisfactory and in what respects otherwise?

Ans. Two practical defects: First, the difficulty in unscrewing the hydrant after having remained embedded in the earth some time. Secondly, the compression of the grammet or leather washer being unequal, after two or three extractions and insertions the nozzle lost its right-angled position with the street, and in course of a few extractions more would probably come on to the sidewalk. Thirdly, the cost was too great to compare with the patent hydrant which I wished to produce, owing to the mechanical parts requiring lengthened periods for their manufacture.

Int. 36. It appears from your testimony, as I understand it, that you made during the year 1856 hydrants such as you have described as having the cases in two parts and formed separately from the hydrant elbow or bend. It also appears upon inspection of the drawings annexed to your patent, taken June 9, 1857, as shown by the certified copy, Exhibit H, that you there proposed to make the case and bend in one continuous piece. Will you state whether you ever made any working hydrant with the case and bend thus formed in one piece?

Ans. Never, sir.

Int. 37. What led you to design the case and bend in one piece in your drawing annexed to your patent?

823 Ans. I thought at the time if I combined both together it would be less trouble for me to get them together.

Int. 38. You attached no importance, then, to having the case separate and removable from the bend?

(Question objected to.)

Ans. No, sir.

Int. 39. Why is it, in your opinion, of no importance to have the case made separate and removable from the bend otherwise than as a

matter of convenience in manufacture? Is there any occasion, practically, for the removal of the case from the bend?

Ans. Yes, sir. My first and only idea of the invention of this hydrant was to take it out of the ground and insert a new one, taking the place of the damaged one, occupying about ten minutes or a quarter of an hour. The practical defect in the solid elbow case was the turning or facing up the internal flange of the elbow; it couldn't be done practically, a perfect surface being required to secure a water-tight joint.

Int. 40. I have not intended to inquire as to the practical advantage in manufacture of making the case in two parts instead of one, but as to the making of a cylindrical case cast in one piece with the elbow, so that it cannot be separated or removed therefrom, as compared with making the case (whether in a single cylinder or two parts) so that the case can be removed from the elbow. I will ask you now whether there was any objection, and what, to having the hydrants made with the case not removable from the elbow as shown in your patent drawing?

Ans. The only objection that I saw in the thing was the trouble of getting the joint faced up; the practical trouble was in getting the facing joint above the elbow at the lower end of the case.

Int. 41. After a case is once made and put in the ground, with the hydrant, what occasion is there that you know of for taking the case up?

Ans. There is no occasion that I know of for taking it up.

Int. 42. Suppose it to be, for any cause, desired to take it up, what would have to be done?

Ans. The only way I know of is to dig around it and take it up that way.

Int. 43. About how long was the screw-joint hydrant down in front of Ayres' shop?

Ans. Down over a year.

Cross-examination:

Cross-int. 44. Can you show me the entry on the book of the screw-hydrant put down in front of Ayres' shop?

Ans. No, I can't show it.

Cross-int. 45. Can you show me the entries for the castings of it?

Ans. No, sir.

Cross-int. 46. Who got up the patterns for the castings of that hydrant?

Ans. I did, sir.

Cross-int. 47. What became of them?

Ans. I don't know what became of them. They remained at the foundry where we were accustomed to get our castings from.

Cross-int. 48. Was that the first set of castings you got up for a casing hydrant?

Ans. Yes, sir.

Cross-int. 49. In your caveat (Exhibit O) you exhibit a sketch of a hydrant, and you state in the petition that you are now engaged in making experiments with it for the purpose of per-

824

fecting same, State what experiments you were making with the hydrant shown in that caveat at the time you signed it.

Ans. The idea that I first had was inserting the case in the elbow joint and making a soft joint under it, I secured the connection of the case and elbow by that means. I thought at the time that would economize the operation; and still having the experiments on my mind, I sent the caveat in on those grounds, not having concluded my experiments, but merely as a safeguard to protect me in my design of taking the hydrant out of the earth without disturbing the earth.

Cross-int. 50. Did you ever try the experiment of making a hydrant such as is shown in that caveat drawing?

Ans. No, sir.

Cross-int. 51. What led you to desire to try the experiment with this mode of fastening at that time, as stated by you in your petition for a caveat?

(Objected to because the petition contains no such statements.)

Ans. The then existing modes of screwing the hydrant to the elbow was by soft-lead joint run round and corked; I took my first idea from that mode.

Cross-int. 52. After filing this caveat what was the first thing you did by way of experiment to perfect the invention for which you subsequently obtained a patent?

Ans. I kept at the drawing-board, and substituting one plan after another until I came across the plan that I took patent out for; and that appeared to be the most feasible plan that I could produce, and consequently I got a patent out for it.

Cross-int. 53. How long did you keep on experimenting before you became sufficiently satisfied to apply for a patent?

Ans. I can't say, sir; I had various other things on the board at the time, and kept putting it on now and again as opportunity allowed.

Cross-int. 54. After filing this caveat, what was the first hydrant that you made which contained the invention set forth in that caveat?

Ans. I made no hydrants constructed like that in the caveat as to the packing of the joints.

Cross-int. 55. In that caveat you say: "Hydrants that are used to supply water in cases of fire are very often broken by firemen in case of any slight defect or in case of frost. This renders repairing necessary, and in those hydrants heretofore made the earth surrounding the same has to be removed at considerable inconvenience and expense. My invention is to obviate this difficulty and provide for removing broken hydrants and substituting others with the greatest facility, and that without removing the earth surrounding the hydrants." What was the first experiment you made with the hydrant after filing that caveat for that invention?

Ans. I produced on the draught-board a design of a hydrant like the model Exhibit J, made the drawings of it, and took out the patent shown—I mean Exhibit H.

Cross-int. 56. Did you make a model like the patent Exhibit H?

Ans. I did, sir.

Cross-int 57. How long after you filed your caveat did you make your application for that patent?

Ans. I don't know, sir, just now.

Cross-int. 58. Was the drawing like Exhibit J the first one you made after you filed your caveat?

Ans. No, sir.

825 Cross-int. 59. What was the first drawing you made after you filed your caveat?

Ans. Hydrant in square form.

Cross-int. 60. How was the casing attached and how was the hydrant attached below in that first drawing which you made after you filed your caveat?

Ans. The case and bend were cast in one piece. After seeing that piece at the foundry the mechanical difficulty occurred of facing the elbow seat. It was broken up, and half cases substituted, with an internal flange at the lower end hooking under the flange of the elbow and bolted at the sides with head bolts. Two lugs were cast on the upper end, slotted to receive bolts for the purpose of compressing the hydrant on the elbow flange underneath.

Cross-int. 61. You have stated that you have made a hydrant like that, and referred to the books in March, 1856, have you not?

Ans. I am not quite sure about that. My recollections does not serve me just now.

Cross-int. 62. Refer to the books which were referred to in the examination-in-chief again, and answer the last question.

The witness is referred to the entry of March 15, 1856, to which he referred in his examination-in-chief.

Ans. I don't recollect making that hydrant.

Cross-int. 63. You have stated in your twentieth answer that that was one of your patent hydrants. Why did you state, if you do not recollect making it?

Ans. It might have been a hydrant made after the caveat was issued, before the patent was made out—probably altered from the old patterns and called patent hydrant. We had several experiments and plans (leave out experiments), and to distinguish them from the hydrants we were making *these* similar to the patent we intended to get out. I suppose the word "patent" was put to it to distinguish it from the other hydrants we were making.

Cross-int. 64 Please state what different plans of hydrants you were making at that date, March 15, 1856, different from those which you had been making before, as referred to in your last answer.

Ans. We made a pot-hydrant; my recollection doesn't serve me what other plans or designs were invented.

Cross-int. 65. Can you state to me specifically any particular entry of a hydrant in that book, which you recollect to have made at that date, sufficiently to tell me what plan it was made on?

Ans. There's an entry there of a patent hydrant, March 15 or 16, 1856, but I can't say specifically what kind it was.

Cross-int. 66. Refer me to any other entry which you can at this date; state specifically what it was.

Ans. I can't tell specifically about what—about a patent hydrant made at that time. All the time that I was securing the caveat my thoughts were upon this improved hydrant that I intended to patent and anything bearing or relative to the patent hydrant. We gave it that name to distinguish it from the others we were making—the old hydrants.

Cross-int. 67. Are you certain that you did not get up a hydrant like Exhibit J until after you got up a hydrant in which the casing was cast in one piece with a bend?

(Objected to. The witness has not stated that he ever got up a hydrant with the casing cast in one piece with the bend?

826 Ans. Yes; I did get up a hydrant like the Exhibit J before I got my patent out.

Cross-int. 68. (Question repeated.)

(Same objections.)

Ans. I got the hydrant with a casing before I produced the casting like Exhibit J.

Cross-int. 69. (Question repeated.)

(Same objections.)

Ans. I got up a hydrant with a case before I produced Exhibit J.

Cross-int. 70. Question repeated.)

(Same objections).

Ans. There was no hydrant with the casing cast in one piece with the bend until after I got up Exhibit J.

Cross-int. 71. Which did you get up first, a hydrant like Exhibit J or the castings for a hydrant in which the casing was cast in one piece with a bend?

Ans. I got up a hydrant before I produced Exhibit J with a loose case.

Cross-int. 72. Which did you get up first, a hydrant like Exhibit J or the casting, in which the casing was cast in one piece with the bend?

Ans. I got up the casing cast solid with the elbow in the first place.

Cross-int. 73. What did you get up next?

Ans. A case with a loose bend.

Cross-int. 74. How long after you gave up the idea of a casing cast with the bend did you get up a hydrant like Exhibit J?

Ans. I can't say how long, but probably after a few days. I had acquired time to alter the patterns to their present form.

Cross-int. 75. When did you last construct a hydrant like Exhibit J?

Ans. Some years ago, during my sojourn with Mr. Ayers, between the years 1857 and 1861.

Cross-int. 76. Is that the last time you knew of such a hydrant being constructed?

Ans. Yes, sir.

Cross-int. 77. Can you state how long a time elapsed between the time you commenced to get up a hydrant and your application for a patent?

Ans. No, sir; I can't state the time.

Cross-int. 78. Give me your best recollection as to length of time intervening between your first attempting to get up a hydrant with the casing and your getting a patent?

Ans. Why, I was a long time trying it before I secured the caveat. It was probably a little over a year or in that neighborhood. I didn't keep any record of time.

Cross-int. 79. Do you mean from the time you commenced trying until you got your patent was a little over a year?

Ans. Yes.

Direct examination resumed:

Int. 80. In the book which has been referred to in the cross-examination, under date 1856, Aug. 21, is the entry "Croton y^{d} 1 square hydrant," and under date 1856, Nov. 20, two entries, each "1 square hydrant"; do you remember what these so-called square hydrants were? If so, please answer.

Ans. I don't recollect any hydrants but the patent hydrants that were made square.

Int. 81. What was it about them that was square?

(Objected to.)

827 Ans. The upper portion above the surface of the ground.

Int. 81½. What became of the patterns of these square hydrants?

(Objected to, as witness has not stated what became of the patterns of these square hydrants, or that he knows anything about them.)

Ans. They were sold to a firm in Detroit of the name of Russell & Company, by Samuel P. Ayres, after we had made a few of them.

Int. 82. In your cross-examination you speak of having, in the first place, after filing your caveat, undertaken to make a hydrant having the case and bend in one piece, which piece, after seeing it at the foundry, you caused to be broken up and substituted half cases. You also say, "There was no hydrant with the casing cast in one piece with the bend until after I got up Exhibit J;" but in answer to the sixty-eighth and sixty-ninth cross-questions you say, "I got up a hydrant with a case before I produced Exhibit K." Please state now what work it was that was done by you or under your direction in regard to making a hydrant case, cast in one piece with the bend, before you got up the form of hydrant shown in Exhibit J.

Ans. I didn't cast any cases attached to the bend before I got up Exhibit J.

Int. 83. So I understand; but if you did some work in that direction before you got up Exhibit J what was it?

Ans. It was the loose cylindrical case connected with the screw-

hydrant, non-attached—that is, not secured by bolts or flanges, or anything of that kind.

Int. 84. You stated in your direct examination that you never made a hydrant with the case and bend cast in one piece, as shown in the drawings of your letters patent. I understand you now to say that you did, after filing your caveat and before getting up the form of hydrant shown in the model Exhibit J, set out to make a hydrant with the case and bend in one piece, but upon seeing that casting at the foundry gave it up on account of mechanical difficulties of so doing work; am I right?

(Objected to as leading, and a highly-improper form of question.)

Ans. Yes, sir.

Int. 85. What kind of hydrants were those which were made at Mr. Ayres' place, provided with cases in the shop? I speak now of such as were made after your screw-joint hydrant.

Ans. The first hydrants we made were from the square pattern sent out of the shop with split cases with the internal flange and elbow lugs, to the best of my recollection.

Int. 86. My question relates to hydrants made at Ayres' place with cases, as distinguished from hydrants made without cases. What kind of hydrants were these that were made with cases?

Ans. They were the old Ayres' pattern, with the spigot cut off the lower part of the hydrant; that was one way. The other way was merely a flange wrapped around the lower end of the spigot to produce a surface for the elastic cushion.

Int. 87. Were these spigot-hydrants provided with any cases which were made in the shop?

Ans. Yes, sir; the altered spigot-hydrant; but the unaltered spigot-hydrants had no cases.

Int. 88. Did the unaltered spigot-hydrants have wooden cases furnished by other parties?

Ans. Yes, sir; a great number of them—the majority of them. I forgot to mention that those cut shorter had an end attached to them similar to the altered spigot.

828 Int. 89. Is there in the room here what you call an altered spigot-hydrant, or a model of it?

Ans. There is a hydrant itself. (Witness points to the hydrant, Exhibit N.)

Int. 90. Now, with the exception of hydrants like Exhibit N and the two screw-joint hydrants that you have testified about, were there any hydrants made in Ayres' shop while you were there which were provided with cases made for them at that place?

(Objected to as leading.)

Ans. Not to my recollection, while I was there. We made two-nozzle hydrants. I believe those had cases attached to them, but I am not certain.

Int. 91. Do you remember in what part of your employment there, whether the earlier or the latter part, those two-nozzle hydrants were made?

Ans. No, I can't say. I have an indistinct recollection of making them, but I can't say when.

W. BRAMWELL.

Attest: R. E. STILLWELL, *Examiner.*

Deposition of Egbert Weeks.

NEW YORK, *March* 29, 1876.

Direct examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Answer. Egbert Weeks; age, about fifty-five; I reside at 241 West 31st street; I am a laborer.

Int. 2. Do you do work for the city? If so, what?

Ans. Yes; labor on repairs of hydrant pipes.

Int. 3. How long have you been doing that kind of work for the city?

Ans. About sixteen or seventeen years, or in that neighborhood.

Int. 4. Have you ever done such work on what are called sugar-loaf hydrants?

Ans. I have helped to take them out of the ground.

Int. 5. Look at the drawing annexed to the Race and Mathews patent of Nov. 16, 1869, and say how that compares with what you call sugar-loaf hydrants.

Ans. It is just like it, exactly.

Int. 6. You say you have helped to take these hydrants out of the ground; will you state what you did to get them out—what you did or tried to do first—and what you did afterwards?

Ans. We went up there and were going to unscrew it, but we couldn't do it, and then all we had to do was to turn to and dig it up, and then we broke the hydrant out.

Int. 7. How long ago was this, as nearly as you can remember?

Ans. It must be anyhow seven or eight years; I couldn't say nearer than that.

Int. 8. After this time when you tried to unscrew the hydrant and couldn't do it, and had to dig it up and break the hydrant out, did you have occasion to get up other hydrants of the same kind; and, if so, how did you get them up?

Ans. Yes, sir; I got up other hydrants of the same sort—
829 plenty of them—but we never tried to unscrew them. We dug them up and broke them out the same as the other.

Int. 9. When you tried to unscrew the first one you mentioned and couldn't do it, how hard did you try? Tell us how many men were at work at it and how they tried to get it out.

Ans. We tried as hard as we could. I couldn't say how many men there were; there might have been four; there might have been five. Well, we put the crowbar in the nozzle of the hydrant and tried to get it out that way.

Cross-examination by counsel for complainants:

Cross-int. 10. Where was it that you tried to unscrew the hydrant referred to in your sixth and seventh answers?

Ans. I don't know, sir.

Cross-int. 11. Where were the hydrants that you say you dug up, in your eighth answer?

Ans. I couldn't tell you that.

Direct examination resumed:

Int. 12. Were the hydrants that you dug up in the city of New York?

A. Yes, sir; they were.

EGBERT WEEKS.

Attest: R. E. STILLWELL, *Examiner.*

The defendants put in evidence reissue letters patent No. 5745 to Z. C. Coffin, assignor to the Boston Machine Company, for improvement in hydrants, being reissue of original patent of July 21, 1868, and the same is marked Defendants' Exhibit Q.

(Counsel for complainants object to the introduction of the foregoing Exhibit Q as inadmissible and incompetent, the reissue having been obtained since the filing of the complainants' bill in this cause.)

The defendants also put in evidence a certified copy of the said original Coffin patent of July 21, 1868, and the same is marked Defendants' Exhibit R.

The defendants also put in evidence a certified copy of the file-wrapper of the application for said patent, and the same is marked Defendants' Exhibit S.

The defendants also put in evidence a certified copy of the specification of the original patent of Race & Matthews, dated Jan. 26, 1858, and the same is marked Defendants' Exhibit T.

Attest: R. E. STILLWELL, *Examiner.*

EXHIBIT H. R. E. S., Examiner.

Letters Patent of the United States No. 17538, granted SAMUEL P. AYRES June 9, 1857; improved method of encasing hydrants; specification.

The schedule referred to in these letters patents and making part of the same.

To all to whom these presents may come:

Be it known that I, William Bramwell, of the city, county,
830 and State of New York, have invented, made, and applied to use a new and useful improvement in fire-hydrants, and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being

had to the annexed drawing making a part of this specification, wherein—

Fig. 1 is a side elevation;

Fig. 2 is a vertical section;

Fig. 3 is an elevation on the top of my said hydrant; and

Fig. 4 is a plan of the base of the same.

Similar marks of reference denote corresponding parts.

Hydrants used for supplying water in cases of fire are very often injured in use and often become leaky from injury or some derangement of the working parts, and in these cases the hydrant has to be removed for repairs by digging down around the same at considerable cost and trouble, and in winter time the excavation is often almost impossible to perform, and consequently hydrants are often necessarily permitted to leak sometimes for several months before they can be repaired, causing a constant overflow of water, which in such weather freezes and obstructs the street.

The nature of my said invention consists in providing a vertical pipe extending up to the level of the sidewalk or street from the branch pipe to the main water-pipe in such a manner that the hydrant is entered therein and attached thereto at or near the level of the sidewalk, while the packing between the hydrant and the said enclosing pipe is sufficiently below the surface to be out of the reach of frost, so that in case of injury to the hydrant the same can be immediately removed after the water has been shut off by a stop-cock to the main in the usual manner by simply disconnecting the hydrant from said case or pipe at the surface of the sidewalk and lifting the hydrant out; thereby the excavation around the hydrant is dispensed with.

In the drawing *a* is the pipe from the main water-pipe; *b* is a bend or elbow at the lower end of the vertical pipe or case *c*, which extends to the level of the street or sidewalk (at *d*); *e* is a seat form at the junction of the pipe *c* and bend *b*, on which a rubber washer or cushion, *f*, is placed, receiving the lower end of the hydrant pipe *g*.

The hydrant itself is formed with the valve *h*, rod *i*, screw *k*, and nozzle screw-plug *l* in the usual manner; *m* is the square, round, or other ornamental casing forming the enclosure to the parts of the hydrant, which may be of any desired shape; *n* is the base of said casing, which sets over the upper end of the pipe *c*, and this pipe *c* is provided with legs or projections *o o*, see Figs. 3 and 4, receiving the screw-bolts *p p* passing through the base *n* and having nuts above said base.

It will now be apparent that the joint between the lower end of the hydrant-pipe *g* and the seat *e* is made perfectly tight by the elastic cushion *f*, of india-rubber or similar material, on screwing up the said screws *p p*, and in case of accident to the hydrant the whole thereof can be lifted out by removing the nuts of said screws *p p*. *q* is a valve closing upward by the pressure of water when the same is admitted into the pipe *g*, but opening so as to allow the water to waste away out of said pipe *g* to prevent freezing after the water is shut off, and an opening should be left in the casing or pipe *e* to allow said water to soak away into the earth.

What I claim as my invention and desire to secure by letters patent is the casing or pipe *c*, with its seat *e* and elastic washer *f*, in combination with the hydrant-pipe *g* and screws *p p*, substantially in the manner and for the purposes specified.

831 In witness whereof I have hereunto set my signature this fourteenth day of May, 1857.

WM. BRAMWELL.

Witnesses:
LEMUEL W. SERRELL.
THOMAS G. HAROLD.

EXHIBIT O. R. E. S., Examiner.

Caveat of William Bramwell. Filed in Patent Office Feb. 20, 1856.
Hydrants for fires.

To the Honorable Charles Mason, Commissioner of Patents of the United States:

The petition of William Bramwell, of the city, county, and State of New York, respectfully represents:

That your petitioner has invented a certain new and useful improvement in hydrants for fires, and that he is now engaged in making experiments for the purpose of perfecting the same preparatory to his application for letters patent therefor.

He therefore prays that the annexed description of his said invention may be filed as a caveat in the confidential archives of the Patent Office, agreeably to the act of Congress in that case made and provided, he having paid twenty dollars into the Treasury of the United States and otherwise complied with the requirements of the said act.

Respectfully yours, W. BRAMWELL.

City of New York, Feb. 18, 1856.

UNITED STATES OF AMERICA,
City, County, and State of New York:

On this eighteenth day of February, A. D. one thousand eight hundred and fifty-six, before the subscriber, a commissioner of deeds in and for the city of New York, personally appeared the within-named William Bramwell, and made solemn oath that he verily believes himself to be the original and first inventor of the within-described fire-hydrant, and that he does not know or believe that the same was ever before known or used, and that he is a native of Great Britain, and that he has resided within the United States for the whole of the past year, and that he has taken the oath prescribed by law for becoming naturalized in this country.

W. BRAMWELL.

Sworn [to] before me the day and year above written.

PHILIP JORDAN,
Commissioner of Deeds for City, County, and State of New York.

To all to whom these presents may come:

Be it known that I, William Bramwell, of the city, county, and State of New York, have invented a new and useful improvement in fire-hydrants and I do hereby declare that the following is a full, clear, and exact description of the same so far as completed, reference being had to the annexed drawing, which is a sectional elevation of my improved hydrant.

Hydrants that are used to supply water in cases of fire are very often broken by firemen in case of any slight defect, or in cases
832 of frost; this renders repairing necessary, and in those hydrants heretofore made the earth surrounding the same has to be removed at considerable inconvenience and expense.

My invention is to obviate this difficulty and provide for removing broken hydrants and substituting others with the greatest facility, and that without removing the earth surrounding the hydrant.

In the drawing, *a* is a pipe connecting with the main water-pipe; *b* is a stop-cock of any ordinary construction, which may be used to shut off the water in cases of repairs; *c* is an elbow or bend forming a chamber, in the upper end of which is a flanch receiving a vertical pipe, *d*, leaded tightly at the joints. This pipe *d* extends to the sidewalk or other place where the hydrant is to be stationed, and terminates with a flanch, *e*, on which the hydrant *f* is placed and attached. This hydrant, *f*, is to be provided with one, two, or more connections for hose and fitted with gates and cups in any usual manner. *g* is a cylinder formed with the upper part, *f*, of the hydrant, and of a size to fit within the cylinder *d*, and formed at the lower end with the valve-seat *h* and valve *i*, which valve is actuated by a screw in the ordinary manner; and around the lower end of this cylinder *g* is an india-rubber or elastic washer, 1 1, that is compressed between the end of the cylinder *g* and a flange on the cylinder *d* by means of screws 2 2; and, after the hydrant is in place, the joint at the flange *e* may be leaded.

It will thus be seen that a damaged hydrant can be removed and another substituted by loosening the screws 2 2, without having to remove the earth, as in the ordinary construction, to the depth of several feet.

I do not claim any of the parts separately, but I shall probably hereafter claim the india-rubber or elastic washer, 1 1, forming a tight joint around the valve-seat when compressed by suitable means acting on the cylinder carrying the valve-seat, as specified.

In witness whereof I have hereunto set my signature this eighteenth day of February, 1856.

W. BRAMWELL.

Witnesses:
LEMUEL W. SERRELL.
THOMAS G. HAROLD.

EXHIBIT P. R. E. S., Examiner.

U. S. PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper in the matter of letters patent granted William Bramwell, assignor to Samuel P. Ayres, dated June 9, 1857, No. 17538, for improved method for incasing hydrants.

In testimony whereof I, Ellis Spear, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this fourth day of March, in the year of our Lord one thousand eight hundred and seventy-six, and of the Independence of the United States the one hundredth.

ELLIS SPEAR,
Acting Commissioner.

No. 17538.

William Bramwell, assignor to Samuel P. Ayres, of New York, county of New York, State of New York. Fire-hydrant.

May 15, 1857, received petition, affidavit, specifications, 2 drawings.

Model, May 4, 1857.

833 1 cert. dep., $10, May 18, 1857.

Caveat, Feb. 20, 1856.

Examined 27th May, '57, Henry.

2 issue, Shugart, May 28, 1857.

3 patented June 9, 1857, +.

Recorded vol. 78, page 253.

Asst. rec'r.

L. W. SERRELL,
New York.

EXHIBIT Q. R. E. S., Examiner.

Letters patent of the United States, reissue No. 5745, granted ZEBULON E. COFFIN, of Boston, Massachusetts, assignor to the Boston Machine Company, Jan. 27, 1874.

Improvement in Hydrant.

Specification forming part of Letters Patent No. 80143, dated July 21, 1868; reissue No. 5745, dated January 27, 1874; application filed May 10, 1873.

To all whom it may concern:

Be it known that I, Zebulon E. Coffin, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in hydrants, and that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

(Here follows diagram marked page 133.)

In the drawings Fig. 1 is a vertical central section through my improved hydrant. Fig. 2 is a horizontal section taken on the line Y Z of Fig. 1. Fig. 3 is a similar section on the line W X of Fig. 1, and Fig. 4 is a plan or top view of the cover.

The drawings represent my invention in the form in which I prefer to apply the same, but the hydrant therein shown as a whole is not quite so long in proportion to its diameter as it should be for ordinary use.

My invention relates, first, to improvements in what are usually termed "frost-jackets;" second, to improvements in the mode of securing the hydrant proper, through which the water flows to the main or elbow leading from the main; and, third, to an improvement in the contrivances for actuating the main valve.

Prior to the date of my invention frost-jackets or cases on hydrants were well known. These frost-jackets surround the hydrant proper, an air-space existing between the two, and when unattached to the main or elbow, and when not screwed to the hydrant proper, serve two purposes—the one to prevent freezing of water in the hydrant proper, the other to prevent the same from being lifted by the frost—the action of the frost being exerted upon the frost-jacket to heave it, while the hydrant proper remains at rest. If the frost-jacket be attached to the main or elbow it lifts the elbow and causes, or tends to cause, leaks. If it be attached to the hydrant proper or so connected with it that the jacket cannot lift without lifting the hydrant then the jacket displaces, or tends to displace, the hydrant and causes leaks, and is useless, except as a preventer of the freezing of water in the hydrant proper.

Hydrants have been of late years constructed with waste-valves; and the frost-jacket, when waste-valves are employed, is of little or no use in preventing the freezing of water in the hydrant,
834 as the water above the frost-line runs out through the waste-valves as soon as the main valve of the hydrant is shut.

Hydrants used prior to the date of my invention in New York and other cities had frost-jackets not attached to the elbow or main, and rising above the top of the hydrant proper, with an air-space between the jacket and hydrant throughout their lengths, and with an aperture through which the nozzle to which the hose is attached passed. This aperture or slot was longer than the diameter of the nozzle, and the jacket could rise under the influence of frost and be driven into place again without displacing either the hydrant or the main or elbow leading from it.

The form of jacket above referred to involved one other difficulty in its use, which was this, that when the jacket did heave earth would fall in below its bottom around the hydrant proper, and this earth in some cases prevented the driving down of the jacket and was an obstacle in removing and replacing hydrants.

I have endeavored to secure in my hydrant the advantages resulting from the use of all known forms of jacket and to provide an additional one, premising before proceeding to the description, that frost seldem extends so low as the top of the elbow or other attachment to the main to which the hydrant is secured, and that a de-

gree of frost which would exert great heaving power near the surface would have no effect at the depth of the bottom of the hydrant.

The hydrant to which these first features of my invention are applied may be of any proper construction, secured in any usual way to the elbow or casting attached to the main.

The frost-jacket is, for reasons hereafter explained, made in two pieces, B and E, both of which are tubular. The lower piece, B, stands on the elbow and is not attached to it. The upper piece is supported by the lower one and hugs the hydrant closely above the surface of the ground and below the hose-plug, so far below it that any heaving of the jacket or casing by frost cannot cause it to strike the plug, and thereby lift, or tend to lift, or displace the hydrant, and strain the joints of the hydrant with the elbow, or of the elbow with the main. Although the upper part of the jacket hugs the hydrant it does not fit it so tightly but that the former can slide on the latter, moving up and down without tending to lift the hydrant; and the jacket is made to fit thus closely in order to prevent cold air from dropping down between the hydrant and the jacket.

In order to hinder heaving of this jacket, except in very heavy and unusual frost, and thereby prevent earth from falling between the lower end of the jacket and the elbow, I have contrived a supplementary frost-jacket, D, which is a short tube or cylinder outside of the jacket, and so supported that it can rise and be driven down without disturbing the lower end of the jacket. In frosts which do not extend below the bottom of this supplementary frost-jacket it alone will be disturbed, and the jacket proper will remain stationary; and, consequently, dirt will not fall in between its bottom and the top of the elbow, and between the jacket and the hydrant.

The upper part of the frost-jacket is made separate from the lower, in order that it may be lifted to give access to the bolts, hereinafter described, without stirring the lower part of the jacket, thereby permitting one hydrant to be removed, and another to be put in its place, without disturbing the lower part of the jacket and the surrounding earth.

The general idea of making a jacket in two pieces, so as to effect the result, is not new with me. Frost-jackets, which extended
835 over the top of the hydrant, had been made in two pieces or lengths prior to the date of my invention, and were as well known as jackets in one piece.

In heavy frosts, extending down to the elbow, or nearly so, and below the supplementary casing, the frost-jacket proper will be lifted or heaved by the frost, and then my contrivance acts as if the supplementary frost-jacket were removed, or never had been made.

The hydrant proper, with its plug T and valve-rod K, stands on a basin, C′, making part of the elbow. This basin has a rim or inwardly-projecting flange around its top. Below the upper end of the frost-jacket there are lugs with holes in them, cast in one piece with the hydrant. Through these holes pass hook-bolts L L, screwed on their upper ends and with their hooks catching under the flange. A ring of packing is put on the basin, the hook-bolts are hooked in place, the hydrant is slipped down between the bolts, and the

nuts are screwed up. The nuts are easily got at by lifting the upper portion of the frost-jacket without disturbing the lower part thereof, and consequently, when the water is shut off from the main, a defective hydrant can be removed and one in good condition put in its place without disturbing the lower part of the jacket or the earth surrounding it.

In former hydrants where the jacket was made in two lengths the bolts were short and bolted to a flange at the bottom of the hydrant and to the flange of the elbow; and it was necessary to use a long key for the purpose of turning the nuts, which, owing to their position, soon rusted fast, and were unscrewed with difficulty, if at all. Further, owing to the fact that the ledge or flange surrounds the basin, the hook-bolts can be shifted to any part of the periphery, and the hose-plug set at any desired angle with the main.

The main valve is shown at H H; ribs to guide it at O O; ribs to guide the cross-head of the waste-valves at O′ O′. This cross-head I I surrounds the valve-stem, and is held down by a spiral spring, and has attached to its lower side the waste-valves, which close the tops of the waste passages or pipes M M, when the main valve is wide open or partly open. These waste-pipes discharge into the bowl, and thence into the soil through the orifice N. The valve-stem passes through a stuffing-box in the top of the hydrant proper, A, whose gland is shown at S. Upon the top rests a nut, G, which extends through the top of a cap, F, which may may be held to the top of the hydrant, so as to prevent the nut from rising, in any proper way, preferably by hooks F′ attached to the cap, and taking under a flange projecting inwardly, and making part of the hydrant's top. This fastening is a sort of bayonet joint.

The construction of the nut is peculiar: Its bore is enlarged at its lower end, so that it acts as a cover for the stuffing-box; it extends above the cap, so as to be capable of being taken hold of by a wrench or spanner, and it has a hole bored through the top, which may be closed by a small plug. The screw on the valve-stem can be oiled through this hole, which is enlarged as it descends, so as to form an oil-cup, and when the cup is removed, and the nut unscrewed, the stuffing-box can be reached and packed.

I claim as my invention—

1. A frost-jacket, substantially such as is herein described, closely surrounding the hydrant above ground and below the hose-plug, and extending to the elbow or other casting to which the lower part of the hydrant is secured, said jacket being attached neither to the elbow nor the hydrant, and therefore having the capacity of being lifted by frost without disturbing the hydrant or the elbow
836 or the joints, and also preventing cold air from dropping down into the space between the hydrant and the jacket.

2. In combination with a frost jacket, substantially such as is herein described, a supplementary frost-jacket, substantially such as described, attached neither to the frost-jacket nor the hydrant, but free to move in respect to both, whereby the jacket is protected from

the heaving action of moderate degrees of frost, and the results described obtained.

3. In combination with lugs at or near the surface of the ground, and with long bolts holding down a hydrant to the elbow or main, and provided with screw-nuts at their upper ends, a frost-jacket made in at least two pieces in such manner, substantially as specified, that the upper may be lifted, the bolts unscrewed, and the hydrant removed and another reset without displacing the lower part of the frost-jacket, the combination being substantially as described.

4. Hooked bolts, in combination with a flange attached to the casting upon which the hydrant stands, and with the hydrant proper, whereby the hose-plug may be set any desired angle with the main, the combination being substantially such as herein set forth.

5. The nut for actuating the valve-stem, constructed substantially as described, combined with the stuffing-box and valve-stem, substantially as specified.

Z. E. COFFIN.

Witnesses:
JABEZ S. HOLMES,
N. AUSTIN PARKS.

DEFENDANTS' EXHIBIT R. R. E. S., Examiner.

Letters Patent of the United States No. 80143, granted ZEBULON E. COFFIN, of Boston, Massachusetts, assignor to Boston Machine Company, July 21, 1868.

Improvement in Hydrants.

The schedule referred to in these Letters Patent and making part of the same.

Be it known that I, Zebulon E. Coffin, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful improvement in fire plugs or hydrants; and I do hereby declare that the following is a full, clear and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Fig. 1 is a sectional elevation.

Fig. 2 is a sectional view on line Y Z.

Fig. 3 is a sectional view on line W X.

Fig. 4 is a plan of the cover.

Fig. 5 is a sectional elevation of the upper part of a flush-top hydrant, which may be used instead of the post-hydrant.

The part C is the base or bottom, *o* being a tie or strengthening piece in the water-way, and one of several guides for the valve H.

Upon the top of the part C, and above the joint, between the base and the stand-pipe or body of the hydrant, is an enlargement or bowl, C′, which has upon its upper edge an annular projection for the hook-bolts L L to take hold of to secure the body of the hydrant to its base. This bowl receives the waste water discharged through

the pipes M M, and discharges it through the holes *n n n*. This bowl should be made just large enough to receive the lower
837 end of the stand-pipe, and leave sufficient room for the necks of the hook-bolts, which are flattened opposite the projection, that they may not occupy more room than is necessary to proper strength, so that when all the parts are in their proper place the hook-bolts are prevented from getting out of place, the lower end of the stand-pipe occupying the space between the hook-bolts.

n n n are holes for the waste water to pass through. *a* is an annular projection on the top of the base for the hook-bolts L L to take hold of to secure the body to the base. This projection is made all the way round the base, that the hydrant-pipe may be conveniently placed at any required angle to the main, as it cannot be when the common lugs or bolts in use are used.

H is the valve for closing the water-way; M M are waste-pipes, to free the hydrant from water when not in use; I I, the valves, to close the waste-pipes when the hydrant is in use; K is the valve-stem; A is the body or stand-pipe of the hydrant; B is the hydrant case; D is the frost-jacket; 1 is the hose-nozzle; U, the cap to hose-nozzle; S, gland to stuffing-box; G, the nut by which the valve is worked through the rod or stem K. The lower end of this nut, which has its bearing upon the body of the hydrant, is so enlarged as to make a cap or cover for the stuffing-box and gland S, and by removing the small screw at the top the screw upon the rod K may be oiled without removing the cover F; also, by removing the cover F the nut G may be conveniently removed, and the stuffing-box around the rod K be repacked. It also has a pocket or enlargement above the female thread, and between it and the top, which serves as an oil-cup to the screw on the top of the rod K; F, the cover, which is held in its place by inclined lugs or bolts, and answers two purposes, viz., to hold the nut G in its place, and cover the top of the hydrants; E, a ring that forms a part of the case.

Advantages Gained by this Invention.

First. The valve closes the water-way at a point on a level with the top of the pipe, so that the water may be drawn, when the hydrant is not in use, much lower than when the common hydrant bend is used, thereby rendering the hydrant less liable to injury by frost.

Second. The hydrant being firmly set in the ground, and the earth filled in to the ground-level, the ring E may be raised, and the nuts on the hook-bolts L L loosened, and the hydant removed, the case remaining in the ground, and another put in its place, or repairs made, and replaced without digging up the ground, thereby saving the expense of wood or brick boxes, such as are usually used.

Third. The frost-jacket D, having a space between it and the case, prevents the earth from freezing to the case and the case being lifted by the frost, and is also a protection to the hydrant from freezing.

Fourth. The waste-pipes, by this arrangement, can be made with

direct, clean openings, and the valves, being opened by a positive movement, and not by springs or gravitation, are sure to free the hydrant of water at the right time, and are not likely to choke up, as in other devices in use for this purpose.

Claims.

1. I claim the combination of the base or bottom of the hydrant with the body of the hydrant, hook-bolts, waste pipe or pipes,
838 and waste-valves, hydrant-valves, and outside cases, all constructed in the manner and for the purpose set forth.

2. I claim the hook-bolts L L, in combination with the body A and bowl C, having an annular projection, *a*, when the parts are constructed substantially in the manner and for the purpose set forth.

3. I claim the nut G, in connection with the rod or valve-stem K and body A, when the parts are constructed and arranged to operate substantially as described.

Z. E. COFFIN.

Witnesses:
THOMAS GAUNT.
GEO. W. HOWARD.

DEFENDANTS' EXHIBIT S. R. E. S., Examiner.

The United States Patent Office to all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the letters patent granted Zebulon E. Coffin, ass'or to Boston Machine Company, dated July 21, 1868, No. 80143, for "imp't in hydrants."

In testimony whereof I, Ellis Spear, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this fourteenth day of March, in the year of our Lord one thousand eight hundred and seventy-six, and of the Independence of the United States the one hundredth.

[SEAL.] ELLIS SPEAR,
Acting Commissioner.

To the Commissioner of Patents:

You petitioner prays that a patent may be granted him for the invention set forth in the annexed specification.

Z. E. COFFIN.

Be it known that I, Zebulon E. Coffin, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful improvement in fire plugs or hydrants, and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, in which Fig. 1 is a sectional elevation, Fig. 2 is a sectional view on line *y z*, Fig. 3 is a sectional view on line *w x*, Fig. 4 is a plan of the cover, Fig. 5 is a

sectional elevation of the upper part of a flush-top hydrant, which may be used instead of the post-hydrant. The part C is the base or bottom, O being a tie or strengthening piece on the water-way and one of several guides for the valve H;* *n n n* are holes for the waste water to pass through; *a* is an annular projection on the top of the base for the hook-bolts L L to take hold of to secure the body to the base;† H is the valve for closing the water-way; M M are waste-pipes to free the hydrant from water when not in use; I I, the valves to close the waste-pipes when the hydrant is in use; K is the valve-stem; A is the body of stand-pipe of the hydrant; B is the hydrant case; D is the frost-jacket; I is the hose-nozzle; U, the cap
839 to hose-nozzle; S, gland to stuffing-box; G, the nut by which the valve is worked through the rod or stem K;‡ F, the cover, which is held in its place by inclined lugs or bolts, and answers two purposes, viz., to hold the nut G in its place and cover the top of the hydrant; E, a ring that forms a part of the case.

Advantages Gained by this Invention.

First. The valve closes the water-way at a point on a level with the top of the pipe so that the water may be drawn when the hydrant is not in use much lower than when the common hydrant bend is used, thereby rendering the hydrant less liable to injury by frost.

Second. The hydrant being firmly set in the ground and the earth filled in to the ground level the ring E may be raised and the nuts on the hook-bolts L L loosened and the hydrant removed, the case remaining in the ground and another put in its place, or repairs made and replaced without digging up the ground, thereby saving the expense of wood or brick boxes, such as are usually used.

Third. The frost-jacket D, having a space between it and the case, prevents the earth from freezing to the case and the case being lifted by the frost, and is also a protection to the hydrant from freezing.

Fourth. These waste-pipes by this arrangement can be made with direct, clean openings, and the valves, being opened by a positive movement and not by springs or gravitation, are sure to free the hydrant of water at the right time and are not likely to choke up as in other devices in use for this purpose.

Claims.

[1st. I claim as my invention the waste-pipe or pipes in connection with the loose finger or fingers upon the rod so arranged, with or without springs, as to positively open and close the opening or openings in the waste pipe or pipes, substantially for the purpose and in the manner set forth.

2d. I claim also the two or more hook-bolts in connection with the annular projections on the top edge, inside or outside of the bowl which forms the bottom of the hydrant.

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* Insert amendment A, filed May 4, 1868.
† Insert amendment B.
‡ Insert amendment C.

3d. I claim the base or bottom of the hydrant in connection with the body of the hydrant, hook-bolts, waste pipe or pipes, and waste-valves, hydrant-valve, and outside case, all constructed in the manner and for the purpose set forth.

4th. I claim also the frost-jacket in connection with the hydrant-case.

5th. I claim also the nut G in connection with the cover F, rod or valve-stem K, and body A.*]

Z. E. COFFIN.

Witnesses:
THOMAS GAUNT.
GEO. W. HOWARD.

STATE OF MASSACHUSETTS, }
City of Boston, County of Suffolk, } *ss:*

On this thirty-first day of January, 1868, before me, the subscriber, a justice of the peace, personally appeared the within-named Z. E. Coffin, and made solemn oath that he verily believes himself to be the original and first inventor of the herein-described hydrant
840 or fire-plug, and that he does not know or believe that the same was ever before known or used, and that he is a citizen of the United States.

EDWARD REED.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *April* 10, 1868.

Z. E. Coffin, Boston, Mass.

SIR: Please find below the decision of the examiner in charge in the matter of your application for patent for hydrant filed Feb. 6, 1868.

Very respectfully,

——— ———,
Commissioner.

EXAMINER'S ROOM No. 96.

The application above referred to has been examined. The first clause of claim is anticipated in the patent of J. L. Lowrey, Feb. 22, 1859.

The second clause is substantially met in the rejected application of H. M. Birkenbine, 1858.

The fourth clause recites a device well known and often applied in connection with hydrants, as in the rejected application of A. Wilhelm, 1861. The fifth clause is believed to be anticipated in the patent of D. C. Gregier, Sept. 10, 1861.

Specification and drawing are sent herewith.

T. C. CONNOLLY, *Examiner.*
By. G. A. NOLEN, *Assistant.*

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* Erase and insert amendment D, filed May 4, 1868.

To the Commissioner of Patents, Washington, D. C.:

In my application for hydrant filed Feb. 6, 1868, I hereby amend my specification and claims as follows: On the first page, line twenty-three, after the letter H, insert ["upon the top of the part C, and above the joint between the base and the stand-pipe or body of the hydrant, is an enlargement or bowl C′, which has upon its u-per edge an annular projection for the hook-bolts L L to take hold of to secure the body of the hydrant to its base. This bowl receives the waste water discharged through the pipes M M, and discharges it through the holes *n n n*. This bowl should be made just large enough to receive the lower end of the stand-pipe and leave sufficient room for the necks of the hook-bolts which are flattened op--osite the projection that may not oc-upy more room than is necessary to proper strength, so that when all the parts are in their proper place the hook-bolts are prevented from getting out of place, the lower end of the stand-pipe oc-upying the space between the hook-bolts."] [A.]

Line twenty-seven, first page, insert after the word base: ["This projection is made all the way round the base, that the hydrant-pipe may be conveniently placed at any required angle to the main, as it cannot be when the common lugs or bolts in use are used."] [B.]

After the letter K, line five, second page, insert: ["The lower end of this nut, which has its bearing upon the body of the hydrant, is so enlarged as to make a cap or cover for the stuffing-box and gland S, and by removing the small screw at the top, the screw upon the rod K may be oiled without removing the cover F; also by removing the cover F the nut G may be conveniently removed and the stuffing-box around the rod K be repacked. It also has a pocket or enlargement above the female thread, and between it and the top, which serves as an oil-cup to the screw on the top of the rod K." [C.]

841 Also erase the original claims and insert the following:

[1st. I claim the combination of the base or bottom of the hydrant with the body of the hydrant, hook-bolts, waste pipe or pipes and waste-valves, hydrant-valves, and outside case, all constructed in the manner and for the purpose set forth.

2d. I claim the hook-bolts L L, in combination with the body A and bowl C′, having an annular projection, *a*, when the parts are constructed substantially in the manner and for the purpose set forth.

3d. I claim the nut G, in connection with the rod or valve-stem K, and body A, when the parts are constructed and arranged to operate substantially as described.] [D.]

Washington, D. C., April 29, 1868.

Z. E. COFFIN.

We hereby concur in the above amendment.

In witness whereof we hereby set our signature, by our treasurer, duly authorized, this first day of May, A. D. 1868.

[Boston Machine Co., May 1, 1868, Boston.]

BOSTON MACHINE CO.,
By HORACE HUNT, *Treasurer.*

BOSTON, *July* 7, 1868.

To the Commissioner of Patents, Washington, D. C.

SIR: Your notice of the allowance of my application for patent for improvement in hydrants was duly received, bearing date May 9, 1868.

Enclosed please find United States Treasurer's certificate for twenty dollars, balance of fee payable thereon.

Very respectfully, your obedient servant,

Z. E. COFFIN.

No. 80143.

ZEBULON E. COFFIN, ass'r to Boston Machine Company, of Boston, county of Suffolk, State of Massachusetts.

Fire Plugs or Hydrants.

Received Feb. 6, 1868: Petition, affidavit, specification, 2 drawings, model, certificate deposit; 1 cash, $15. 1 additional fee certificate, $20, July 9, 1868. Additional fee, cash. Examined May 7, 1868; Connolly. 2 issue, N. W. Heilborn, May 8, 1868; 4 patented July 21, 1858 +. Recorded, vol. —, page —. Circular, May 9, 1868.

Application for reissue filed May 10, 1873; reissued Jan. 27, 1874. No. 5745.

April 10, 1868, spec'n sent.

DEFENDANTS' EXHIBIT T. R. E. S., Examiner.

Letters patent of the United States No. 19206, granted WASHBURN RACE and S. R. C. MATHEWS Jan. 26, 1858.

Improvement in Hydrants.

Specification.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Seneca Falls, in the county of Seneca and State of New York,
842 have invented a new and improved hydrant, and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings making a part of this specification, in which—

Fig. 1 is a vertical section of our improvement.

Fig. 2 is a horizontal section of do., taken in the lines *x x*, Fig. 1.

Fig. 3 is a detached view of the annular valve.

Fig. 4 is a detached side view of the device by which the valve-rod is operated.

Fig. 5 is a detached view of the wrench.

Similar letters of reference indicating corresponding parts in the several figures.

The invention consists, first, in a novel construction and arrangement of valves, whereby the waste pipe or orifice is opened as the induction-pipe is closed and *vice versa*, and the perfect operation of the valves insured, both being operated by a single lever or wrench.

The invention consists, second, in a peculiar construction and arrangement of parts, as hereinafter shown, whereby the hydrant may be readily detached from its base and removed or withdrawn without the trouble and expense of excavating.

To enable those skilled in the art to fully understand and construct our invention we will proceed to describe it.

A represents the case of a hydrant, the upper part of which (a) may be of any appropriate and ornamental form, provided with one or more horizontal nozzles, B. The lower part (b) of the case is smaller in diameter than the upper part, and is of a cylindrical form. The part (b) is below the surface of the ground and the part (a) above it.

The lower part (c) of the part (b) of the case is enlarged somewhat in diameter, and an annular valve, B′, is fitted therein. This valve is formed of a flat ring (d′) grooved circumferentially in its exterior surface to receive a packing (e), which may be of leather or other suitable material. The ring (d) is provided with a cross-bar (f), having a hub or boss (e′) at its centre, in which the lower part of a rod, C, is fitted, said rod having a shoulder (g) formed on it, which serves as a bearing for the upper edge of the hub or boss, and a nut (h) is placed on the rod below the hub or boss, said nut fitting on a screw-thread. By turning the nut in a proper direction the valve B′ may be firmly secured on the rod. Through the ring (d) of the valve B a screw (i) passes, said screw passing through the ring at a point directly opposite an opening (j) in the part (c) of the case.

The lower end of the part (c) has a screw-thread formed on it and is screwed into the upper end of a curved or bent pipe, D, which is fitted permanently in the ground and communicates with the "main." The upper end of the pipe D is provided with a flanch (k) and a small spout or nozzle (l). The flanch (k) extends all around the pipe D, and it receives the lower end of a cylindrical jacket, E, which is permanently fitted in the ground. An annular piece of packing (m) is interposed between the upper end of the pipe D and the lower end of the part (c) of the case.

Within the lower part of the part (c) of the case a screw-thread is formed to receive an annular valve-seat, F, said seat being screwed into the lower end of (c).

G represents a valve which is formed of two parts (n) (o), the part (n) being of cup form and containing a nut (p) by which the valve G is secured to the lower end of the rod C, a screw-thread being on the lower end of the rod. The other part (o) of the valve is
843 a cap which is screwed down upon a packing (q), which, when said valve is closed, bears against the seat F, as plainly shown in Fig. 1. The valve G is allowed to turn freely on the rod C.

Around the outer side of the part (c) of the case A a groove (r) is made, said groove being in the same plane with the opening (j) in the part (c), and the spout or nozzle (l) on the pipe D.

The lower end of the upper part (a) of the case A is provided with a flanch (s), which fits over a flanch (t) on the upper end of the jacket E.

In the upper end of the part (a) of the case A there is screwed a cap, H. The cap H is screwed into a recess (w) in which packing (v) is placed, the above parts forming a stuffing-box.

To the upper part of the rod C a yoke, I, is attached, and a cam or eccentric, J, is fitted within the yoke. The cam J is placed upon a shaft, K, which has its bearings in a flanch (a′) on the upper part (a) of the case A.

One end of the shaft K projects beyond the end of the flanch, and has a square formed on it to receive a wrench, L, shown in Fig. 5. The sides of the yoke I are slotted vertically, as shown at (b′), Fig. 4, the shaft K passing through said slots.

The yoke I is covered by a cap, M, the lower edge of which is provided with a flanch (a″), which is fitted on the flanch (a′) of the case, and secured to it by screw-bolts.

The ring (d) of the annular valve B′ may be provided with lugs (e″), as shown in Fig. 3, said lugs fitting in grooves in the case in order to prevent the valve from closing casually.

The wrench L has a fork at each end, one fork fitting the square on the shaft K, and the other fork fitted [to] the nut (p). The upper end of the cap H also has grooves or recess- made in it to receive one end of the wrench L, for the purpose of turning the cap.

The operation is as follows: By applying the wrench L to the square on the shaft K, the cam or eccentric J may be turned without raising or moving the cap M, and the rod C may be raised and lowered thereby. When the rod C is raised, the valve G bears against its seat, F, and the water from the "main" is prevented from passing into the case A of the hydrant.

And when the valve G is closed, the valve B′ is above the opening (j), and therefore the water within the case A may pass out through the opening (j) into groove (r), and out at spout or nozzle (l).

When the rod C is lowered, the valve G opens, and the annular valve B′ passes over the opening (j), closing the same, while the water from the "main" passes up through the seat F, through the case A, and out through nozzle B. Thus it will be seen that when the water is admitted into the case the escape passage (j) is closed, and when the water is shut off the said passage (j) is opened.

In case any of the parts require to be repaired, the whole hydrant may be raised, the jacket remaining stationary, by merely unscrewing the lower part of (c) from the upper end of the pipe D. This is effected, of course, by turning the case A. By this means no excavating is necessary in order to repair the hydrant, as it may be removed and replaced without difficulty.

We do not claim broadly, for we are aware that hydrants have been constructed, and their parts arranged in various ways, so that they could not be removed for repairs without excavating, the parts

being rendered capable of being withdrawn from the case; but we are not aware that an arrangement like ours has ever been used for effecting the purpose. Neither do we claim the casing of
844 hydrants when the case and base of pipe D are in one piece, and permanently attached to the pipe from the "main," as that has been previously done; neither do we claim separately the arrangement of the valves B′ G, but we claim—

First. The annular valve B′ and the disk-valve G, attached to the rod C, in combination with the escape or leak opening (j) and seat F, the above parts being arranged to operate as and for the purpose set forth.

Second. The combination of the case A, induction-pipe D, provided with flanch (k), and the jacket E, when arranged, as herein shown and described, to effect the desired end, to wit, the ready removal, when necessary, of the case and working parts of the hydrant for repairs.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
WHITING RACE.
W. S. DALEE.

Evidence for Complainants in Reply,

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, William Blaikie, special examiner.

Deposition of James D. Keegan.

NEW YORK, *March* 29, 1876.

Present: George L. Roberts, Esq., of counsel for complainants; Causten Browne, Esq., of counsel for defendants.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, and have you before testified in this case?

Ans. James D. Keegan; I have.

Int. 2. In your former deposition you refer to certain wooden cases set around hydrants for the water department of New York city ever since your occupation of the position of foreman of repairs. Is there here present such a wooden case as you therein refer to; and, if so, will you identify it to be introduced in evidence?

Ans. I do; it is marked Complainants' Exhibit No. 7.

Int. 3. For what size of hydrant is this wooden case, Exhibit No. 7, made?

Ans. It is made for a number-one hydrant, and answers for both number two and number one.

Int. 4. Please explain a little more definitely the difference between a number one and number two hydrant.

Ans. The difference is in the length of the hydrant. The differ-

ence between number one and number two is eighteen inches; I won't be certain about the number of inches; I think that's the difference; I never measured it.

Int. 5. When a case of this size and length is used with the longer hydrant, upon what does the bottom of the case rest?

(Objected to by Causten Browne, Esq., as not open after the first examination of the witness.)

Ans. Upon the earth.

845 Cross-examination by CAUSTEN BROWNE, Esq., of counsel for the defendants:

Cross-int. 6. In your former deposition you said, speaking of these wooden jackets, in answer to the question, "When they were down in their place what did the bottom edge of the wooden case or jacket rest upon?" "Nothing but the earth. The front stave rested upon the elbow of the hydrants." Is that what you mean to say now in regard to the wooden case Exhibit 6 when used either with a number one or number two hydrant?

Ans. It rests upon the elbow when used with a number two hydrant, which is shorter than number one. When used with a number one hydrant it rests upon the earth or foundation. We have to fill in, of course, to fetch the top up level with the flange of the hydrant.

Cross-int. 7. Which do you have the most of, number two hydrants or number one?

Ans. Well, that would be pretty hard for me to say. We've got quite a number of each.

Cross-int. 8. Have you, as a general thing, had in use about as many of one size as of another?

Ans. No, sir; we're pretty well mixed up in the sizes. There are four sizes.

Cross-int. 9. Don't you know whether there are more or less number two hydrants than number one in the city?

Ans. I couldn't say as to that.

Cross-int. 10. How do the four sizes differ between themselves as to length and how are they designated?

Ans. They are designated by numbers, according to length. The shortest hydrant we use is about two foot, I think, from the sidewalk flange to the elbow; that is a number four. Number three is three foot, number two comes somewhere about four foot, and number one is supposed to be five feet.

Cross-int. 11. With all these four different sizes of hydrants I suppose the top of the wooden case is intended to come to about the surface of the ground; is that so?

Ans. That is the intention, but it isn't carried out in all cases.

Cross-int. 12. Are these wooden cases ordered and made all of the same length or of different lengths?

Ans. We have two sizes of the wooden cases.

Cross-int. 13. Only two?

Ans. That's about all. We did have, I believe, at one time, three sizes, but we've done away with them again.

Cross-int. 14. You mean by sizes lengths, I suppose?

Ans. Yes, sir.

Cross-int. 15. When you have a case on hand long enough to reach from the surface of the ground down to the elbow and rest upon the elbow you use it, do you not?

Ans. We do; yes, sir.

Direct examination resumed:

Int. 16. In your tenth answer you give about the length of each of the four numbers of hydrants between the sidewalk flange and the elbow. Do you mean in each case the distance between the sidewalk flange and the bend in the elbow or the distance between the sidewalk flange and the top of the elbow, where the hydrant stock is inserted?

Ans. The distance of the hydrant is two foot from the flange to the end of the spigot, which goes into the socket of the elbow.
846 I mean of number four, and I reckon the distance between the same points in the other sizes.

Cross-examination resumed:

Cross-int. 17. Who has ever made these cases for the city besides Mr. Cheesebrough?

A. I don't remember names. I think Alderman Henry had the making of those boxes for some time. Other parties have made them, but I don't remember their names.

JAMES D. KEEGAN.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Jared M. Gleason.

NEW YORK, *June* 7, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Jared M. Gleason; fifty-eight years; Erie, Penn.; am a pattern-maker and machinist.

Int. 2. Were you ever in the employ of Washburn Race and S. R. C. Mathews, at Lockport, in State of New York? And, if so, when first and in what capacity?

Ans. I commenced in their employ, in the capacity of a pattern-maker, early in January, 1861. I worked as machinist and pattern-maker both after a little and from that right along.

Int. 3. Was the business carried on subsequently under another name? And, if so, under what name and who had charge of it?

Ans. It was carried on afterwards, as it was called, in the name of the Niagara Manufacturing Company. As far as I know, Race & Mathews had charge of it after the name was altered, just the same as they did before.

Int. 4. About when, as nearly as you can recollect, was the business first carried on under the name of the Niagara Manufacturing Company?

Ans. It was some time along in the fall of 1864, I think, it was altered.

Int. 5. How long did you continue in the employ of the Niagara Manufacturing Company and in what capacity?

Ans. I continued there till the first week in 1867. I was there as a machinist and pattern-maker.

Int. 6. What kind of work did you do there during the year 1866?

Ans. I worked at patterns and I worked at making steam-engines.

Int. 7. What was manufactured by the Niagara Manufacturing Company during your employment by them?

Ans. Well, we manufactured hydrants and we manufactured steam-engines and we manufactured various other things that have no bearing on this at all, such as pumps and scales.

Int. 8. Did you do any pattern work for hydrants? And, if so, what was the character of the last of such work which you did there?

Ans. The last pattern work I done was to alter the hydrant from what we called inside case to an outside case. That's the last pattern work I done on hydrants.

Int. 9. Describe more particularly what you did in order to alter the hydrant patterns in the manner referred to.

847 Ans. Well, now, I can't go on and described that in words. I ain't learned enough in words, but if you'll allow me to use those things here (referring to Complainants' Exhibits 5 and 6) then I can show you so that you'll understand it. That hydrant (pointing to Complainants' Exhibit 5) is what I have referred to as an inside case; the case goes into the top inside. Now, I took the pattern (Complainants' Exhibit 5) and turned off that part into which the upper end of the case goes, leaving a little bead at the upper end, and then I had to alter the case and allow it to slip up onto the part that I had turned off. I don't see as I can give it to you any better than that.

Int. 10. Will you refer to the hydrant, which I will now designate as Complainants' Exhibit 8, and introduce in evidence, and state how it compares with the altered patterns which you made, as stated?

Ans. That hydrant was made from the patterns that I altered.

Int. 11. At the upper end of the case of this hydrant, Exhibit 8, there is a swell of about a foot in length. Will you state how the original pattern compared with it in respect to shape?

Ans. The original pattern runs straight up, within about two inches of the upper end, and then turned out straight, and came out quick, like that model (Exhibit 5).

Int. 12. You have mentioned leaving a bead upon the pattern at the upper end of the place where you turned off the stock of the old pattern. What was the object of that bead?

A. The object of that bead was to keep the case from slipping out of its place.

Int. 13. With the exception of the alterations of the old patterns to change the hydrant from one with what you have termed an inside case to one with an outside case, was the remainder of the patterns the same for both kinds of hydrants?

Ans. Yes.

Int. 14. Have you any memoranda made by you at the time relating to this work of altering the hydrant patterns so as to make an outside case instead of an inside case; and, if so, will you produce them and state what they are?

Ans. I have. (Witness produces an old memorandum book, which is marked Complainants' Exhibit 9.) This book is a memorandum book. It was given to me by the firm to keep a memorandum of my work that is set in the book here. The book begins—the first date I've got in the book is March 9, 1866. The hydrant work is as follows:

		Hours.
May 24.	At hydrants	8
25.	hydrants	10
26.	"	7
June 5.	Hydrant *patrons*	10
6.	" "	10
7.	" "	10
8.	" "	10
9.	" "	5
15.	Hydrant pat.	10
16.	" "	10
19.	Hydrant P.	8
20.	" "	10

Int. 15. When were these entries made, and by whom?

Ans. They were made at the time that the date appears in the book. They were made by myself every day on which the work was done.

848 Int. 16. Under whose instructions did you make those alterations mentioned in the hydrant patterns?

Ans. I made them under the instructions of Race & Mathews.

Int. 17. I notice that in this book the memorandum of work leaves off with the date Sept. 17. What was the condition of the business of the Niagara Manufacturing Company during the remainder of 1866?

Ans. Well, the work was very slack from that out, as long as I stayed with them; very slack indeed. They let go part of their hands on account of slackness of the work.

Int. 18. Did you personally know of any practical reason why the change was made in the construction of the hydrants from an inside to an outside case—that is to say, did you personally know of any difficulties arising in the use of the inside case?

Ans. I knew of one hydrant in Lockport, New York, that was blown out of its place, or thrown out of its place, rather, on account

of the frost heaving the case up against the under side of it. What I mean by the under side is that these cases running up under the collar that I turned off when I altered the pattern. I helped put another hydrant in the place of the same kind.

Int. 19. How much of a stock of these old hydrants with inside case did the Niagara Manufacturing Company have on hand during the summer of 1866?

Ans. I don't know as I could tell for certain. Well, I can't tell for certain. I should say between twenty-five and fifty of them.

Int. 20. What was done towards manufacturing the new style of hydrant with outside case after you altered the patterns, as stated, and before you left the employ of the Niagara Manufacturing Company?

Ans. Well, possibly there might have been a dozen of them made—made for samples.

Cross-examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 21. Do the entries which you have quoted from your memorandum book, ranging from May 24 down to June 25, 1866, all relate to the work you did in altering the pattern to the loose case or outside case form; if they do not, will you state which of them do?

Ans. The work that has the words "patrons" or "pat." or "P." entered with it relates to this alteration.

Cross-int. 22. You say that the hydrant produced here, marked Complainants' Exhibit 8, was made from the patterns which you altered. State how you know that fact.

Ans. I know it by the case being altered the way it is altered; I know it by the form.

Cross-int. 23. What you mean, I suppose, is that you remember the form of the patterns as they were when altered by you, and that this hydrant is in the same form. Is that what you mean to say?

Ans. Yes; it's the same form of hydrant that I made when I altered the patterns.

Cross-int. 24. Do you know where this hydrant, Exhibit 8, came from?

Ans. I don't know no more'n what I've heard say.

Cross-int. 25. You say that there might have been a dozen of the new style of hydrant with outside case made before you left the employ of the Niagara Manufacturing Company. Do you think there might have been even more than that made during that time?

849 Ans. There might have been a hydrant or two over, or it might have lacked a hydrant or two of being a dozen. I don't know how it was exactly, nor how many there was made.

Cross-int. 26. Were these dozen or so new-style outside-case hydrants all of the same size, or did they embrace different sizes, and how many different sizes?

Ans. There were two-sized patterns, or two different patterns, all the same shape pretty much.

Cross-int. 27. Did the hydrants of the large size differ among themselves?

Ans. They don't differ, because by altering the spout they make different numbers of them. What I mean is, they were made some with one and some with two hoze nozzles; otherwise they were just the same.

Cross-int. 28. Was this true also of the hydrants of the smaller size?

Ans. I think it was true also of the hydrants of the smaller size.

Cross-int. 29. What was the bore of the stock of the large size and of the small size, respectively?

Ans. The bore of the large one was four inches; the small one was three inches.

Cross-int. 30. Were these dozen or so hydrants all made at one job, or were they made along from time to time during the year 1866?

Ans. They were made by piecemeal; made "along," as he calls it.

Cross-int. 31. What was done with them as they were respectively made?

Ans. They were laid by in the shop, as far as I knew.

Cross-int. 32. Did you know anything about it, except as you were told by somebody?

Ans. I know I saw them laying there in the shop.

Cross-int. 33. Can you say how long you saw them lying there in the shop?

Ans. No, sir; I cannot.

Cross-int. 34. Do you know what ultimately became of them, or any of them?

Ans. I remember two of them being sent away as samples to some place, but I don't know where they were sent to.

Cross-int. 35. Do you know to whom?

Ans. No, sir.

Cross-int. 36. How do you know they were sent as samples?

Ans. I was told so by the man who put them up and shipped them.

Cross-int. 37. Who was he?

Ans. His name was Dean—Harvey Dean. I believe the man's dead now. That was the name of the man that done the shipping.

Cross-int. 38. This was while you were employed there, I believe?

Ans. Yes, sir.

Cross-int. 39. Besides these two you have spoken of as being sent away as samples, can you say what became of any of the dozen or so you were speaking of?

Ans. No, sir.

Cross-int. 40. Can you not tell us where any one of them now is?

Ans. No, sir.

Cross-int. 41. You have said that these dozen or so were made as samples; what do you mean by "made as samples;" do you mean that they were not for sale?

Ans. No, sir.

850 Cross-int. 42. They were for sale, then, were they, as they lay in the shop?

Ans. Yes, sir.

Cross-int. 43. How soon after you completed your alteration of the patterns was the first one of these dozen or so hydrants made and brought into the shop, to the best of your recollection?

Ans. Well, I should think within two weeks after the patterns were done.

Cross-int. 44. Where was the shop you speak of?

Ans. It was in Lockport, State of New York.

Cross-int. 45. Was it the place or room where the various articles Race & Mathews had on sale were placed or exhibited?

Ans. It was.

Cross-int. 46. Now you have said that these dozen or so hydrants were made for sale, and that they were placed in the shop with other articles of Race & Mathews' manufacture which were for sale; why did you say that the hydrants were made for samples?

Ans. Well, the reason I say that the hydrants were made for samples was because it was talked so in the shop.

Cross-int. 47. Is Mr. Race dead, as you understand it?

Ans. I have understood since I came here that he was dead.

Cross-int. 48. You have spoken of one instance of an inside-case hydrant at Lockport that was thrown out of place by the action of the frost, and you helped to put another hydrant in the place of the same kind. Whose place was this? For whom was the job done?

Ans. It was done for the city of Lockport. It was a city hydrant.

Cross-49. In what year was this?

Ans. I am not certain whether it was 1864 or 1865.

Cross-int. 50. While you were employed by Race & Mathews, did you do all their work of repairing or removing damaged hydrants?

Ans. No, sir.

Cross-int. 51. Who else did that kind of work for them—their names and residences?

Ans. That I couldn't tell you. Well, there was this Harvey Dean done some once in awhile. That's the only one I have any recollection of.

Cross-int. 52. Was the Lockport hydrant the only one you had anything to do with removing or repairing?

Ans. Yes, sir.

Cross-int. 53. You have said that you made the alterations of the patterns from the inside-case construction to the outside-case construction under the instructions of Race & Mathews; do you mean from them personally, or from some foreman or head workman of theirs?

Ans. I got my instructions from Race & Mathews personally.

Direct examination resumed:

Int. 54. You have mentioned two sizes of hydrants as manufactured by the Lockport Manufacturing Company. Did the alteration of the patterns from the inside-case construction to the out-

side-case construction made by you in June, 1866, embrace both of these sizes?

Ans. It did.

Int. 55. What work was done in the shop which you have spoken of, where the new-style hydrants with outside case were laid?

Ans. Well, they were laid in the same building where they were manufactured—that is, in one end of the same room.

851 Int. 56. Was the room a machine-shop, or what other work was carried on there?

Ans. Why, it was a machine-shop, and it was where they done painting. One end of the room was a machine-shop and the other used for painting up hydrants and other stuff with it.

Int. 57. You have mentioned the fact that pumps and skates were manufactured by the Niagara Manufacturing Company. Where were these articles kept after they were finished?

Ans. Well, they were kept some of them upstairs and some of them in this room that I spoke of before.

Int. 58. Where were the old style of hydrants kept in stock before the alterations to an outside case was made?

Ans. There was a part of them kept down cellar and part of them in this room I speak of.

Cross-examination resumed:

Cross-int. 59. Did Race & Mathews do their own casting while you were there?

Ans. After the first year I was there they done their own casting.

Cross-int 60. Speaking of those two outside-case hydrants which you said were sent away as samples while you were there, did they ever come back, to your knowledge?

Ans. No, sir; not to my knowledge.

Cross-int. 61. Did any of the rest of that dozen or so outside-case hydrants go away from Race & Mathews' place while you were there?

Ans. I have no recollection of any of the rest of them going away.

JARED M. GLEASON.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of John H. Rhodes.

NEW YORK, *June* 7, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. John H. Rhodes; fifty-seven; I reside at 418 Clermont avenue, Brooklyn; water surveyor of the city of Brooklyn.

Int. 2. How long have you held your present position, and what are the duties of it?

Ans. I was appointed in 1859, and have held it ever since. It is

the charge of the distribution of water, and the extension of the water-mains, known as the extension of distribution throughout the city.

Int. 3. What had been your previous profession or occupation?

Ans. I had been previous to that, from about 1856, in the same employ as assistant engineer engaged in surveying and inspecting water-pipes. I was educated as a naval architect.

Int. 4. Since your connection with the water-works of the city of Brooklyn, what kind of fire-hydrants have been used there—if you can designate them by any distinctive name?

Ans. Some were known as the Coffin hydrants, and some as the Sylvester hydrants, which were manufactured for the city by Z. E. Coffin, of Boston. He manufactured all under the original contract. The next hydrant used was what was known as the Lockport hydrant, manufactured by Race & Mathews. Subsequently from the
852 Niagara Manufacturing Company the same kind of hydrant. Then we have also a hydrant known as the McLellan hydrant. We have another hydrant manufactured by the Boston Machine Company, of Boston, and a hydrant manufactured by Messrs R. D. Wood & Co., of Philadelphia. That, I think, comprises all of the various hydrants we have in use.

Int. 5. Will you look at the models of hydrants, Exhibit 5 and Exhibit 6, and state how the hydrants furnished by Race & Mathews, the Niagara Manufacturing Company, and R. D. Wood & Co., compare with them in construction, so far as concerns the features of attachment of the hydrant stock to the elbow, the detached case, and the valves which govern the flow of water and the waste outlet are concerned, beginning with the earlier form of construction known to you?

Ans. They are both screwed on to the hydrant turn, as we call it; they both attach by screwing together instead of leading together, and instead of being held down by bolts attached to lugs. I should say this (Complainants' Exhibit 5) is the Lockport hydrant, the case passing on the inside, and this (Complainants' Exhibit 6) is in the manner in which it is made now by R. D. Wood & Co., with the case on the outside of the main body of the hydrant instead of the inside of a flange; that's the difference between the two. I only know in respect to the valves that the action of opening the main closes the waste, and is termed a mechanical waste-valve, as distinguished from a spring. It is a positive movement instead of one left to the action of a spring. I don't remember any difference in the mode of operating the waste-valve between the two hydrants.

Int. 6. About how many hydrants of this manufacture, in which the hydrant-stock is attached to the turn by a screw-joint, have been in use by the Brooklyn water-works?

Ans. I can't tell you positively, but I think there may be about one hundred and fifty.

Int. 7. What has been the practical working of this feature of construction for the purpose of removing and replacing the hydrant proper, when found necessary for repair?

Ans. Well, sir, it's been entirely satisfactory, as a general thing. It is very rare that there's been any trouble at all. It's been very satisfactory indeed.

Int. 8. Has any intrinsic difficulty been found in your experience in the employment of a screw-joint for attaching the hydrant proper to the turn, when exercising ordinary mechanical skill?

Ans. No, sir.

Int. 9. Judging from your actual experience, what degree of practical value and utility have these hydrants manufactured by Race & Mathews, the Niagara Manufacturing Company, and R. D. Wood & Co. had, as compared with any other kind of hydrant actually known to you?

Ans. I may answer that simply by saying, if you choose to state the merits of this hydrant in itself, that, when it becomes necessary to take up a hydrant for repairs, there is no necessity of taking up the flagging of the sidewalk to remove the hydrant. We have to unscrew the hydrant from its connection with the turn below and replace it by screwing on another hydrant; or, if need be, it may be replaced by one that is in order, so that the other may be repaired, if need be, without disturbing the sidewalk.

Int. 10. How were the hydrants in use in the city of Brooklyn, previous to the introduction of the Race & Mathews hydrant, set in the ground, and what protection, if any, did they have?

853 Ans. They were set in the ground with a wooden box, called a wooden hydrant-box, placed around them, coming above the sidewalk to the top of the hydrant, the top of which was a wooden cover, on top of the wooden box, which was attached by a hinge to enable the firemen to obtain access to the screw of the hydrant, to use it for their purposes. An opening was left in the side of the box, from which the nozzle of the hydrant protruded for the purpose of attaching hose. A recess of six or eight inches was left around the nozzle, for the box to rise with the frost, so as not to tear up the connection with the hydrant below.

Int. 11. How was the hydrant so boxed to protect it from frost during the winter season?

Ans. In 1860 we were in the habit of filling the box with salt hay; after that time that course was deemed to be unnecessary, and came into disuse. Subsequently there was no protection further than the fact that the turn of hydrants was below the freezing point.

Int. 12. Was there anything to prevent the cold air from entering the box at the aperture around the nozzle and falling down to the bottom of the box around the hydrant?

Ans. There was nothing placed to close the aperture at all.

Cross-examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 13. Did you not have for the city of Brooklyn some fire-hydrants from Race & Mathews, or from the Niagara Manufacturing Company, which were of similar construction to those now manufactured by R. D. Wood & Co.—that is to say, with the case arranged to play up and down on the outside of the stock? I refer to the

construction shown in the drawing of the Race & Mathews patent of 1869.

Ans. I don't think we had any from Race & Mathews, nor am I positive that we had any from the Niagara Manufacturing Company, but I think I recollect seeing one from the Niagara Manufacturing Company that was made that way. I think I know of one, and I am impressed with that idea. If there was one, I think there must have been more.

Cross-int. 14. Was this one which you have the impression you have seen stamped with the name of the Niagara Manufacturing Company?

Ans. It was by that—thinking that I saw their name or title upon it—that leads me to think that I saw it.

Cross-int. 15. Speaking of the hydrants you have had in Brooklyn having the stock connected with the turn by a screw-joint, have you had occasion to take up the outside case or jacket of those hydrants?

Ans. It may have been done. I think I recollect one case where a truck run into the hydrant and smashed it, and we had to dig it up altogether. I might say further than that, it's possible we may have dug up two or three of them; but it's not customary; it's rare.

Cross-int. 16. Have the instances in which it has been required to remove the stock of these hydrants from the turn, leaving the case or jacket in place, been also rare?

Ans. Well, it has been frequently done, sir.

Cross-int. 17. When asked in regard to the practical working of these hydrants in the matter of unscrewing and returning the stock when found necessary for repair, your answer was, "Well, sir, it has been entirely satisfactory as a general thing." I infer from this that there have been instances in which it was otherwise. If I am right, will you please state in what respects difficulty or inconvenience was experienced in the matter inquired of?

Ans. Well, sir, I don't know of any. At this time I couldn't
854 tell you of meeting with any difficulty of taking out or replacing. There is none just in my mind at present which I can refer to.

Cross-int. 18. Have the hydrants we are speaking of had the screw-joints made of brass or cast iron?

Ans. I don't know, sir; I haven't examined them in reference to that. I don't know, sir.

Cross-int. 19. Are you not mistaken in supposing that you have ever had from Race & Mathews, or the Niagara Manufacturing Company, any hydrants in which the jacket or case was at its top inside of a ring making part of the bead so as to be unable to rise above that ring? I refer to the construction shown in the model Complainants' Exhibit 5.

Ans. I am not mistaken. I remember the fact, but I should also say that the hydrants I speak of had an up and down play to relieve the hydrant from the action of the frost. The principal recommendation of this hydrant to me originally was that, by the move-

ment of the frost-jacket, we might be saved the danger of breaking the hydrant-pipe that was connected with the main.

Cross-int. 20. How great a range of upward movement did the jackets of these hydrants have? I speak of course of the hydrants of the construction of Exhibit 5.

Ans. I never measured them; I have no judgment about it; I don't know; I couldn't tell. It seemed to have been sufficient to answer the purpose.

Cross-int. 21. How long ago do you think you bought the first hydrant, such as we are now speaking of, from Race & Mathews or the Niagara Company?

Ans. I don't know the time, but the first hydrant we set in the city of Brooklyn was one furnished by Mr. Mathews himself. I had it set directly in front of my house in order that I might be enabled to test the hydrant by frequent openings, and the effect that would be produced upon it by the frost. It remained there several years, and so far as effected by trial it was entirely satisfactory. This was a hydrant like Complainants' Exhibit 5.

Direct examination resumed:

Int. 22. Do you remember that during the year 1867 a large number of hydrants, amounting to upwards of one hundred, were furnished to the city of Brooklyn by the Niagara Manufacturing Company?

Ans. No, sir; I don't recollect the fact.

Int. 23. Can you recall to mind the circumstances of the first large lot of hydrants, constructed without side-sliding cases, being furnished to the city of Brooklyn?

Ans. Not especially of that construction. The requisitions and orders at that time were made through the chief engineer's department and not through the purveyor's. When these hydrants were put into the ground they were turned over to me. Until then they were in the charge of the engineer's department, and hence I wouldn't know the exact date of those purchases.

JOHN H. RHODES.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Albert H. Goss.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

855 Ans. Albert H. Goss; fifty-four; Auburn, New York; I have had charge of the Auburn water-works for just about twelve years as secretary, treasurer, and manager.

Int. 2. When was the Auburn Water-Works Company organized, and is it a municipal company or an independent corporation?

Ans. In 1863 or the winter of 1864 the organization was effected. It is an independent corporation, under a special charter from the Legislature of New York to supply that city with water.

Int. 3. How large a city is Auburn, New York?

Ans. It has about 20,000 inhabitants.

Int. 4. About how many hydrants have you had in use there, and of whose manufacture?

Ans. Two hundred and three are in use there now. We commenced with nearly one hundred in 1864, and have added to them each year since. We first purchased of the Niagara Manufacturing Company of Lockport, Race & Mathews' patent. The next purchase was of Mr. S. R. C. Mathews individually, and since 1870, I think, of R. D. Wood & Co., of Philadelphia.

Int. 5. What differences in construction have been made in the hydrants since the earlier purchase by your company?

Ans. Our first purchases were patterned similar to this (Complainants' Exhibit 5); the outside case came up against the flange similar to this (Complainants' Exhibit 5), shutting in under a rim. The latter form was like Exhibit 6.

Int. 6. How have all these hydrants been attached to the bend or turn which delivers the water from the main?

Ans. They have been screwed into the shoe, as we call it; sometimes called an elbow or turn.

Int. 7. Have you in practice had occasion to remove the hydrant-stock from its elbow or bend; and, if so, how frequently and with what degree of convenience and facility?

Ans. We have had occasion every year to remove the hydrant-stock from the shoe or bend. It's been often during each year that we have so done. We never have experienced any difficulty, sir, in removing them when we have had occasion to do so or in returning them to their place.

Int. 8. What personal attention have you given to these hydrants during the last twelve years and what opportunity have you had for observing their uses and mode of working?

Ans. I have been present at the setting of most of the hydrants, and at the removal of most of them and changing of most of them. I have been most always present at every fire during the last twelve years.

Int. 9. Is the winter season at Auburn a severe or mild one, as a general rule?

Ans. It is called severe, sir.

Int. 10. What has been the behavior of these hydrants in respect to withstanding freezing?

Ans. It has been very good.

Int. 11. Are you able to speak from practical observation of the advantages of a close-air chamber between the case and stock of the hydrant; and, if so, will you specify them and give such illustrations as occur to you?

Ans. Yes, sir. We find from practical observation that these hydrants (Complainants' Exhibits 5 and 6) do not freeze. We have had no difficulty in the freezing of either. We have had a little difficulty with that pattern of the hydrant (pointing to Com-
856 plainants' Exhibit 5) from the heaving of the frost where the ground was springy and stony especially. The difficulty I

speak of has been the heading of the case of the hydrant striking against the flange and breaking the joint or some other part of the hydrant. Sometimes it would break in the joint of the shoe connecting with the surface-pipe. Those cases have been few.

Adjourned.

JUNE 8, 1876.

Int. 12. Has the difficulty you speak of in the last preceding answer been obviated in the later form of hydrant; and, if so, how?

Ans. It has entirely; by allowing the case to raise, as illustrated in Complainants' Exhibit 6.

Int. 13. When the case of such a hydrant as is illustrated by Exhibit 6 has been lifted by the frost, what has been your practice in respect to returning the same to its former position?

Ans. We drive them back very readily with a piece of wood and hammer by driving on the top of the outer case.

Int. 14. Have you had occasion to observe the practical behavior of other hydrants in which the hydrant-stock was not protected by a case forming a close-air chamber and not provided with any device for yielding to the heaving of the frost?

Ans. In our own work we have with the Holly hydrant, made by the Holly Manufacturing Company. We had two of those set by the Holly Company which were broken by the heaving of the frost where the stock was screwed onto the shoe or elbow below. That has been all of my practical experience.

Int. 15. Have you found any difference in the heaving effect of frost in ground of different kinds—that is to say, does the nature of the ground have any influence in determining the action of the frost in this respect; and, if so, what?

Ans. It does in our experience. We find the heavy clay soil and the soil that is springy and stony to heave much more than the common soil or sand soil. The experience before testified to in regard to the heaving the cases and breaking the hydrants all occurred in the heavy clay and stony kinds of soil in every instance which I have reference to.

Int. 16. Will you state the practical advantages arising from such a construction as is contained in the Race & Mathews hydrants by which the waste orifice is positively closed as soon as possible during the movement to open the main valve?

Ans. I would say, especially in cold weather, it prevents the overflowing of the water around the hydrant which would be calculated to freeze below and around the hydrant if allowed to flow, preventing the danger also of water remaining between the case and the hydrant and freezing there in severe weather; and, in addition, the overflowing of the water around the top of the hydrant at the surface of the ground and freezing during cold weather. Of course, any waste of water that would occur would be of some account.

Int. 17. How deep have you known the ground to be frozen and still not freeze up your hydrants?

Ans. The ground has been frozen at some parts of the city five feet. During that time we had only two or three hydrants frozen

and that caused by leakage of the valves going into the hydrant-stock.

Int. 18. How is the water supplied to the city of Auburn, and under what pressure is it in time of fire?

857 Ans. We are supplied by the Holly system, or the direct pressure into the main, pumping directly into the main; no reservoir or stand-pipe. We run regularly under a pressure of thirty pounds to the square inch for ordinary supply at the works. In cases of fire our pressure is from sixty to one hundred pounds to the square inch, varying according to the extent of the fire and elevation of the district where the fire occurs.

Cross-examination by CAUSTEN BROWN, Esq., of counsel for defendants:

Cross-int. 19. How often have you known the ground to be frozen in the city of Auburn as deep as five feet below the surface?

Ans. Only at two seasons, to my recollection?

Cross-int. 20. How many years does your recollection cover?

Ans. It's about twelve years, sir—my connection with the company.

Cross-int. 21. When were the two seasons you speak of?

Ans. The last was the winter of 1874–'75. The other I am not able to state; some years previous. I have no memorandum to fix the date.

Cross-int. 22. What kind of hydrants were they which were frozen as you have described during these cold seasons?

Ans. Those were the Mathews hydrants, like Complainants' Exhibit 5 or Exhibit 6; I can't say which.

Cross-int. 23. As a general rule, are your hydrants in Auburn set with the shoe or elbow below the frost point?

Ans. It was our intention to place them there.

Cross-int. 24. If they are so placed will not the water which may run to waste through the waste-valve while the main valve is opening or at any other time run into the ground or off into the sewer?

Ans. As I understand counsel, he has asked me if the waste provided in hydrants of any construction will so operate. My answer would be: That would depend on the size of the waste and the construction of the valve admitting certain quantities of waste allowed to pass off the waste from the hydrant, and the drainage provided to take the water from the waste at the base of the hydrant.

Cross-int. 25. In those cases where two or three of the Mathews hydrants froze during very cold weather, by reason of leakage of the valves going into the hydrant-stock, what consequences followed and what difficulty did it produce with the hydrant?

Ans. In one case, at least, it burst the hydrant-stocks, and would be apt to do so, unless discovered at once and thawed out.

Cross-int. 26. In the Holly hydrants, of which you said your city had a couple, was there a case or jacket outside of the hydrant-stock, which case or jacket, at its upper end, was lapped over by a cap screwed down, so that the jacket or case could not lift?

Ans. I cannot state positively in regard to that. That would be

my impression. I know it was screwed at the bottom. I never examined that Holly hydrant with sufficient care so as to be able to give testimony with regard to its construction. I know that the hydrant-stock was bolted to the shoe, as we call it, at the bottom. There's where the breakage occu red.

Cross-int. 27. Are you able to testify whether or not these Holly hydrants had a case outside of and surrounding the hydrant-stock and forming a close-air chamber?

Ans. Not positively, sir; but I think not. My examination of that Holly hydrant was after it was dug and the nature of the breakage at the base of the hydrant.

Cross-int. 28. Your attention, then, was not particularly
858 directed to the question whether it had an outside case forming around the hydrant-stock?

Ans. Not particularly.

Direct examination resumed:

Int. 29. Have all the hydrants put in by the Auburn Water-Works Company during your connection with it been Race & Mathews hydrants of the two forms of construction illustrated by Exhibits 5 and 6, except the two Holly hydrants spoken of?

Ans. Yes, sir.

ALBERT H. GOSS.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Mark H. Gascoigne.

NEW YORK, *Jan.* 8, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Mark H. Gascoigne; forty-three; Detroit, Michigan; am district engineer in the fire department of Detroit and superintendent of the fire-alarm telegraph.

Int. 2. What are your duties as district engineer in the fire department, and how long have you held your present position?

Ans. As district engineer my duties are to assist the chief engineer at fires, and to superintend the construction and setting of fire hydrants and reservoirs. Eight years. I took the position July, '68, and have held it ever since.

Int. 3. What kinds of hydrants have been in use during the last eight years in the city of Detroit, if you can designate them by any distinctive name?

Ans. We have had so many it's pretty hard to remember. We've had the Bartholomew hydrant; we've had two kinds of Ayres hydrants; we had one Chicago hydrant, whose maker I never knew; we always called it the Chicago hydrant. We had another of our own make that we made in the department from our own patterns, and the Mathews hydrant. That is all I can remember just at present.

Int. 4. How was the Bartholomew hydrant set in the ground?

Ans. It was set into an elbow with a lead joint and bolted with outside bolts. There was a wooden case entirely covering the hydrant, standing over it probably six inches, with a cover opening on top to get at the hydrant handle. There was also a slot, eighteen inches long, to admit the nozzle, the top of the slot resting on the nozzle projection.

Int. 5. Were any of the other hydrants set in the same manner as the Bartholomew hydrants, or covered in the same manner; and, if so, which?

Ans. One of the Ayres hydrants was covered in the same manner, but having flanges to bolt together the hydrant-stock and the elbow, instead of the lead joint.

Int. 6. Did the cold air outside have access to the hydrant-stock within the wooden case; and, if so, through what opening and how far down?

Ans. It went, of course, through the lower portion of the
859 slot, and went far enough down to freeze the hydrant sometimes from three and a half to four feet, if water remained in the hydrant.

Int. 7. What precautions did you take, if any, to keep such hydrants from freezing?

Ans. We packed first some straw or hay in immediately below the slot and covered it on top with horse manure or sawdust.

Int. 8. What was the construction of the other kind of Ayres hydrant which you have mentioned?

Ans. It was an iron hydrant having the stock and elbow or shoe connected by bolting at the top, and a clamp on the lower end of the shell or jacket, making the stock, jacket, and shoe all tightly connected in one.

Int. 9. Will you examine the hydrant marked Exhibit N—or rather the four parts of which are designated as N 1, N 2, N 3, N 4—and state how it compares in form and construction with the Ayres hydrant last described by you?

Ans. Well, it's, as far as I can see, just like it in every way. It had the same sort of waste-valve as this Exhibit L.

Int. 10. Of whose manufacture were the Mathews hydrants mentioned by you?

Ans. They were supposed to be Wood & Co.'s, Philadelphia.

Int. 11. And how do they compare in construction with the model Exhibit 6?

Ans. They were just like the model Exhibit 6, except they were single-hose nozzles, and did not have the slot in the elbow nor the projecting nipple upon the bottom of the case which runs in the slot for the waste opening, but had instead holes drilled through each.

Int. 12. Have you had occasion to take out and put back from time to time your fire-hydrants for the purposes of repair; and, if so, how did you do it in the case of each of the four kinds of hydrants described?

Ans. In the case of the Bartholomew and first-described Ayres

we always dug down and disconnected at the elbow. In the case of the second-described Ayres oftenest they were changed for breakages, and of course we had to dig down to them. The Mathews hydrant in every case so far where we had to renew the valve, which has been the only repairs done so far, we screw the hydrant out of the hub or elbow, replace the valve, and screw it right back again.

Int. 13. Have you experienced any difficulty in unscrewing the hydrant-stock from the hub or elbow and in screwing it back into the same position again in cases where you have repaired these Mathews hydrants?

Ans. We've found no difficulty in unscrewing them and screwing them back in their places, some of them, of course, requiring a little more force to unscrew than others.

Int. 14. About how many of these Mathews hydrants are now in use in the city of Detroit?

Ans. Something over two hundred.

Int. 15. About how many of them were in use there eight years ago, and what has been the rate of increase as far as you can roughly estimate?

Ans. I couldn't estimate any rate of increase at all, because we started, after getting the first number, making a hydrant of our own. We used our own pattern for four or five years and they turned out a failure. We then commenced buying the Mathews hydrant and have bought no other since.

860 Int. 16. What was the construction of this hydrant of your own pattern, which you have referred to?

Ans. It was similar to complainant's Exhibit 6, above the ground, and to the Ayres iron hydrant below.

Int. 17. It had, then, an iron jacket bolted to the elbow below, and bolted to the hydrant-stock above, did it?

Ans. No; the jacket was bolted to the hydrant-stock above, and caught under the flange of the elbow with clamps below, just as the iron Ayres hydrant, Exhibit H, does.

Int. 18. What was the difficulty with these last-described hydrants which caused them to turn out a failure?

Ans. Breaking off at the elbow by the heaving of the frost.

Int. 19, How did the iron Ayres hydrant, like Exhibit H, behave?

Ans. It failed from exactly the same cause, the earth catching around it and heaving it, and also from a defective waste. Our water pressure runs from twenty-five down to six pounds. The lower pressure not being near sufficient to raise the waste and close it, left it open during the time the hydrant was using and filling the case with water and flowing over above the surface, or at the surface.

Int. 20. To what degree of exposure to cold air from without were these Ayres hydrants, like Exhibit H, subject? And what effect did it have upon any water remaining in the case from the defective waste-valve, or otherwise?

Ans. Of course they were subject to the same cold that all the

others were. The hydrant, in the majority of cases, would be found frozen during any severe cold if any water remained between the shell or jacket and stock, as the openings around the upper end of the jacket would admit the cold air.

Int. 21. How have the Mathews hydrants compared with the other hydrants described by you in respect to their resistance to freezing?

Ans. I can't draw a comparison very well for the reason that we never have removed a Mathews hydrant yet for freezing.

Int. 22. Have you ever removed any of the other hydrants for freezing; and, if so, to what extent?

Ans. We have removed of our own pattern about sixty, and of the Ayres iron hydrant, like Exhibit H, something over thirty; the majority of these were broken by freezing.

Int. 23. What advantage have you found from such a construction of the waste-valve as is contained in the Mathews hydrant?

Ans. Well, it closes more rapidly than any other we had in use. The sand deposited from water remaining in the hydrant sometimes clogged in the other waste; the Mathews waste, being on the side and closing from above, always cleaned itself.

Int. 24. You have mentioned the destructive effect of the heaving action of the frost upon the Ayres hydrant, like Exhibit H, and those of similar construction of your own make. How has the Mathews hydrant been affected by this same agency?

Ans. The shell has been moved up, has been lifted by the frost in some cases almost up to the limit. When the weather got mild or the ground got soft around the hydrant we went and drove them down again. If the others had something to move up with the ground they would not have broken off.

Cross-examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 25. Are not waste-valves which are closed by the
861 pressure of the water entering from below through the main extensively used in this country?

Ans. I have no knowledge of any but the one used on the Ayres hydrant.

Cross-int. 26. What are the openings that you referred to in the Ayres hydrant through which you said the cold air got in so as to freeze the hydrants?

Ans. The top of the outer case or shell in our Ayres hydrant did not come up to the under face of the cap by about three-fourths of an inch, and the outside of the case did not fill the hollow of the cap by about a quarter of an inch all around, except where the bolts came. It was through these openings that the air entered, as I have described.

Cross-int. 27. Is the construction of the Mathews hydrant, as a whole, which you have used, such as to prevent the leaving of water

between the shell or jacket and the stock or hydrant for any length of time after the main valve is shut?

Ans. If the hydrant is properly constructed, yes.

M. H. GASCOIGNE.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Isaac S. Hobbie.

NEW YORK, *June* 8, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Isaac S. Hobbie; fifty-six; Elmira, N. Y.; I am manufacturing wooden, water, and gas pipe, and have been for eighteen years.

Int. 2. Were you ever connected in a business capacity with the Elmira water-works; and, if so, when?

Ans. In 1860 myself, Gen. Swan, and Archelaus Wyckoff constructed the Elmira water-works, and afterwards, until 1868, I had the entire management of the works. I was one of the directors and the principal owner.

Int. 3. Did you, during this period, purchase any hydrants of the Niagara Manufacturing Company of Lockport, N. Y., of which Washburn Race and S. R. C. Mathews were principal managers? And, if so, when was the first purchase made?

Ans. In 1866 or '67 we purchased four or five hydrants of that pattern of those parties. The first one was received at Elmira on the seventh day of March, 1867.

Int. 4. How do you fix the date on which the first hydrant so purchased was received? And if you have any memorandum by which to assist your memory state what it is.

Ans. I have in my hand the original day-book kept by myself, on which is written by me, under date of March 7, 1867, the following entry:

ELMIRA, *March* 7, 1867.

Elmira Water Co., Dr.

To cash p'd f't on hydrant	$2 37
" " " cartage "	60

I have charged the Elmira Water Company with having paid out of funds in my hands the amount charged for transportation
862 of one hydrant for them. "P'd" means paid and "f't" means freight in this entry.

Int. 5. Do you remember where this first hydrant was set and have you been able to identify it?

Ans. It was set on the corner of Water and Cross (now Market) streets, and I have identified it, and it is now here. (The witness identifies Exhibit 8.)

Int. 6. When was this hydrant, Exhibit 8, taken up bodily, and had it been in use up to that time?

Ans. Some time this spring it was taken up, and a few weeks ago I saw it in the ground, before it was taken up. At the request of S. R. C. Mathews, some two years ago, I put a private mark on it with a cold chisel by which to identify it. It was in use from the time it was first put down till the time it was taken up, a few weeks ago.

(No cross-examination.)

I. S. HOBBIE.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Theodore W. Davis.

NEW YORK, *June* 8, 1876.

Direct examination by GEORGE L. RORERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Theodore W. Davis; thirty-two years; Poughkeepsie, N. Y.; civil engineer; have been a practicing civil engineer nine years.

Int. 2. Do you hold any position in connection with the water-works of the city of Poughkeepsie; and, if so, what?

Ans. I do; superintendent.

Int. 3. How long have you been superintendent; and, if connected with the water-works previously, in what capacity and how long?

Ans. Two years; have been connected with the water-works seven years; as its resident engineer five years previous to my being superintendent.

Int. 4. What hydrants have you in use in the city of Poughkeepsie—of whose manufacture, and what is their present number?

Ans. Mathews' improved, two hundred and eighty-five; one Ludlow; in all, two hundred and eighty-six. The Mathews hydrants were manufactured by R. D. Wood & Co., of Philadelphia.

Int. 5. Please examine the model Exhibit 6, and state if that is a substantial representation of the Mathews hydrants mentioned.

Ans. Yes; as a model it is.

Int. 6. During your connection with the Poughkeepsie water-works have you had occasion from time to time to remove the stock of these Mathews hydrants and replace the same for the purpose of repair?

Ans. Very frequently.

Int. 7. With what degree of facility have you found yourself able to accomplish this, and how was it done?

Ans. Two men, after the water was shut off the street, have taken out the stock, replaced a valve, and returned a hydrant in five minutes' time.

Int. 8. What is the character of the winter weather in Poughkeepsie as to severity, so far as you have had experience of it?

863 Ans. Two years ago for several days continuously the range of temperature was between fifteen and twenty degrees below zero. It varies, of course. I am giving an extreme case.

Int. 9. How have the Mathews hydrants behaved in respect to their resistance to freezing during the cold weather?

Ans. But two were fozen that winter, both the result of carelessness. In one case of a fire at night the department connected with a hydrant, then removed their line of hose and put on the cap without fully closing the hydrant. Our inspectors failed to discover the fact until next morning. In the other instance permission was given to fill a cistern from a hydrant; seven hundred and fifty feet of hose were laid (at this point the pressure was one hundred pounds on the square inch) and the hydrant opened but a little way and run so for several hours. The waste-valve was worn. As a result the water blew through the waste-hole and froze around the hydrant, so that when it was closed the water remaining above the valve chilled and froze before it wasted.

Int. 10. Will you name some of the advantages which occur to you of having the waste-valve closed positively as soon as possible after the main valve begins to open, as in the constructien of the Mathews hydrant?

Ans. In an instance where the hydrant is only partially turned on, as is frequently the case under high service during severe weather, sufficient water would be forced out waste to produce a result similar to the one mentioned in the previous answer, if the waste-valve was not positive and immediate in its action.

Int. 11. What has been the practical working of the sliding case of the Mathews hydrants within your experience?

Ans. It has been satisfactory.

(No cross-examination.)

THEO. W. DAVIS.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Joseph N. Tubbs.

NEW YORK, *June* 9, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Joseph Nelson Tubbs; forty-three; Rochester, N. Y.; have been a civil engineer for twenty-five years.

Int. 2. Has the city of Rochester an artificial supply of water; and, if so, when were the works constructed and under whose supervision?

Ans. Yes, sir; they were constructed between 1872 and 1876 and under my supervision as chief engineer.

Int. 3. With how many fire-hydrants is the city supplied and how long has the greater part of them been in use?

Ans. I think there are something over five hundred, and they were put in mostly in 1873 and 1874.

Int. 4. Of whose manufacture were these hydrants?

Ans. All except about twenty were manufactured by R. D. Wood & Co., of Philadelphia.

Int. 5. How do they compare in construction with the model, Exhibit 6?

Ans. (Witness, examining Exhibit 6, says): That's the style of hydrant manufactured by R. D. Wood & Co.

864 Int. 6. Have you had occasion from time to time, for the purpose of repair, to take out and replace the hydrant-stock of these R. D. Wood & Co. hydrants; and, if so, how well have you found the screw-joints by which it is attached to the elbow to operate practically?

Ans. Yes, sir; have found it to operate well, and have been able to remove and replace them with great facility.

Int. 7. Have you found any difficulty in adjusting their position so that the hose-nozzle shall stand in the desired direction?

Ans. None.

Int. 8. What was the character of the weather in Rochester winter before last—that is, the winter of 1874–'75?

Ans. Unusually cold.

Int. 9. About how many of these R. D. Wood & Co. hydrants did you have in use there during the winter, and how well did they withstand freezing?

Ans. I think between three and four hundred. They withstood freezing well in all cases except when they were put in very exposed situations, such as open areas, where not surrounded with earth.

Int. 10. How well have they withstood the heaving of the ground by frost, and what is their operation under this action?

Ans. I never have known the barrel of the hydrant to be affected by the action of the frost in the way of heaving or being displaced. The operation of the frost upon the hydrant is to move the outside frost-case without moving the barrel.

Int. 11. What practical advantages, if any, have you observed from the construction of the waste-valve in these R. D. Wood & Co. hydrants, by which the leak opening is positively closed as soon as possible after the main valve begins to open?

Ans. The advantage is that there is only the amount of water which is retained in the barrel to discharge into the ground, while, if it was not certainly and suddenly closed, the ground would be filled to saturation with water directly from the main, thus obstructing the final discharge from the barrel and rendering it liable to be frozen.

Int. 12. Have you had any experience with the other twenty or more hydrants not of R. D. Wood & Co.'s manufacture, in respect to the practical working of a case which was not close enough at the top to prevent the cold air from flowing down around the hydrant-stock below the ground; and, if so, what has been their behavior in respect to freezing?

Ans. Yes, sir. They were nearly all frozen during the winter of '74 and '75.

J. NELSON TUBBS.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Josiah D. Cook.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Josiah D. Cook; forty-six; Toledo, O.; have been a civil engineer for the last twenty five or six years continually, with the exception of the five years from 1860 to 1865.

Int. 2. Is the city of Toledo supplied with water artificially, and do you hold any position in connection with such water supply?

865 Ans. Yes, sir; I am chief engineer and superintendent of the Toledo water-works, and have held the position since the spring of 1872.

Int. 3. What kind of fire-hydrants have been in use in the city of Toledo during the time you have been superintendent of the water-works there, and about what number?

Ans. Mathews hydrant—manufactured by R. D. Wood & Co., of Philadelphia, and the Boston Machine Company, of Boston; I should say forty-five of the Boston Machine Company's in actual use and three hundred of R. D. Wood & Co.'s.

Int. 4. Have you had occasion, from time to time, to remove the stock of the Mathews hydrant from its elbow for the purposes of repair, and to replace the same; and, if so, have you experienced any difficulty in so doing, either in respect to unscrewing the stock from the elbow or in respect to screwing it back again, or in respect to setting the hose-nozzle in the desired direction?

Ans. Yes, sir; I have had occasion to do so; no serious difficulty. In three or four instances, possibly more, in replacing them we had difficulty in getting the nozzle to front the street properly. We regulate that by using thicker or thinner gasket or washer, as the case may be. We had to turn one new hydrant round a quarter-turn to make it water-tight when first set, which we corrected in the same way by afterwards putting on a thicker washer.

Int. 5. How well have these hydrants of R. D. Ward & Co.'s manufacture withstood freezing during the time you've had experience with them?

Ans. I do not now remember an instance of freezing where the hydrant has been set to the regulation depth of five feet covering—that is, five feet of ground above the elbow.

Int. 6. What is the character of the winter weather of Toledo as respects severity?

Ans. It is very varied. For instance: The weather of 1874–'5 was a very severe one, mercury varying from one to twelve degrees below zero for about sixty days.

Int. 7. What has been the effect of the heaving action of the frost upon these Mathews hydrants?

Ans. The effect has been to raise the frost-case and leave the body of the hydrant undisturbed.

Int. 8. Will you examine the model Exhibit 6, and state whether it is a substantial representation of the hydrant which you have referred to as the Mathews hydrant, manufactured by R. D. Wood & Co.?

Ans. I so consider it.

(No cross-examination.)

JOSIAH D. COOK.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of Eli Bates.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Eli Bates; fifty; I reside at No. 84 Attorney street, New York city; have been chief of the fire department of New York city for three years.

866 Int. 2. What are your general duties as chief of the fire department?

Ans. My general duty, sir, is [to] take charge of the department in the extinguishment of fires and to see that the rules made by the commissioners for the discipline of the department are strictly carried out.

Int. 3. Have you, during the time of your holding office as chief of the fire department, had occasion to investigate the frequency of delays arising from the freezing of hydrants, and to make official reports of the same?

Ans. That is a rule governing the department since the year 1867. All delays of any kind whatever are to be reported in reports of operations of each company commander to the chief of the fire department. There is no fire occurs but we have the reports of each company officer showing the cause of the delay. From the reports of operations of each company is a consolidated report made of all fires, which is referred to the president of the board. It is made up by my clerks and signed [by] me and sent to the board of fire commissioners.

Int. 4. Did you prepare a report of delays arising at fires in the city of New York from the special cause of freezing of hydrants during the winter season of 1874–'75, and have you a copy of it here present?

Ans. I had a report prepared for the years '74–'75 of hydrants found frozen and the time consumed in thawing 'em out, and the means employed in so doing. I furnished a copy of that to the Senate investigating committee, and I have here a copy of the report I

furnished them, which was taken from the detailed reports in my office. Of course I witnessed a great deal of this personally.

Int. 5. Will you produce the copy of this report to be annexed to your deposition and made a part thereof, marked Exhibit 9?

Ans. I do here produce it.

(It is produced, subject to the objection of the defendants that it is incompetent. It is agreed between counsel that the examiner may spread this copy upon the record as the exhibit produced, subject to no other objection than the exhibit itself.)

Int. 6. If I understand you correctly, the items of this report, Exhibit 9, are all taken from the special reports of fires made to you as chief of the department. Is it so?

Ans. Yes, sir.

Int. 7. From your own personal observation and experience when present at fires, with what degree of frequency have delays occurred from frozen hydrants, particularly during the severe winter season of 1874–'75?

Ans. 1875, latter part of January and February, almost every fire there were some delays—at least, hydrants found frozen. I would state it is so much so it's considered a part of our equipment to be prepared and carry a thaw-hose attacher to the engine to take steam from the boiler and insert it in the hydrant in case it's frozen, for the purpose of thawing the hydrant out if possible.

Int. 8. Will you look at Complainants' Exhibit 7, and state whether a great number of hydrants in the city of New York are not surrounded with such a contrivance from the surface of the ground downward?

Ans. I can't give a positive answer on that, but from what I see and know I suppose that all hydrants have that wooden casing on them, so far as I know or have knowledge of them.

Cross-examination *de bene esse* by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 9. Does this copy of report which you have produced show all the delays from frozen hydrants which have taken
867 place since you have been in the fire department of New York city, or only those that took place during the winter of 1874–'75?

Ans. Only those of 1874–'75.

Cross-int. 10. Do you know how deep below the surface of the ground the main valve was in the case of the hydrants mentioned in this report?

Ans. As I understand, to the best of my knowledge, these three different sizes or depths, numbered one, two, and three; number one is the longest, number two next, and number three is the shortest of the three sizes. But I have no record of those where these delays are caused, whether it's number one, two, or three.

Cross-int. 11. How deep below the surface of the ground is the main valve in the number one, number two, and number three, respectively.

A. To the best of my knowledge I should think the deepest is not considered to be more than four feet below the level of the sidewalk and the shortest about one foot less.

ELI BATES.

Attest: WM. BLAIKIE,
Special Examiner.

COMPLAINANTS' EXHIBIT 9. W. B., Special Examiner.

Statement showing the delay in thawing out frozen hydrants at actual working fires during the winter of 1874–'75, and the consequences of such delays.

1874.

Dec. 15th.—Fire No. 28 Bond St. Eng. Co. 33 reports 2 minutes delay at frozen hydrant. Fire originated in basement and extended to 1st floor.

1875.

Jan. 6th.—Fire 525 West 38th St. Eng. Co. 19 reports 8 minutes delay at frozen hydrant.

Jan. 12th.—Fire 363 to 369 Rivington St. Eng. Co. 28 reports 3 minutes delay at frozen hydrant. Fire originated on 1st floor and extended to 3d floor.

Jan. 13th.—Fire 58 and 60 Reade St. Eng. Co. 27 reports 5 minutes delay at frozen hydrant.

Jan. 16th.—Fire rear of 41 Eldridge St. Eng. Co. 9 reports 2 minutes delay at frozen hydrant.

Jan. 22d.—Fire 17 East 31st St. Eng. Cos. 14 and 16 each report 3 minutes delay at frozen hydrants. Fire originated on 2d floor and extended to 4th floor.

Jan. 24th.—Fire 189 8th Ave. Eng. Co. 3 reports ½ minute delay at frozen hydrant. Fire originated on first floor and extended to 2d floor.

Jan. 25th.—Fire 5 Mott's lane. Eng. Co. 23 reports 2 minutes delay and Eng. Co. 40 4 minutes delay at frozen hydrants. Fire originated on 1st floor and extended to roof and to adjoining buildings, 4 and 6 Mott's lane.

Jan. 27th.—Fire 307 East 9th St. Eng. Co. 5 reports 3 minutes delay at frozen hydrant.

868 Feb. 1st.—2295 3d Ave. Eng. Co. 35 reports 10 minutes delay at frozen hydrant. Fire originated in basement and extended to roof and to adjoining building, 2297 3d Av.

Feb. 2d.—Fire 117 Chambers St. Eng. Co. 7 reports 12 minutes and Eng. Co. 12 30 minutes delay at frozen hydrants.

Feb. 6th.—Fire 46 Marion St. Eng. Co. 31 reports 5 minutes and Eng. Co. 33 3 minutes delay at frozen hydrants. Fire originated on 3d floor and extended to 5th floor.

Feb. 6th.—Fire 493 Broadway. Eng. Co. 30 reports 15 minutes and Eng. Co. 31 1 minute delay at frozen hydrants.

Feb. 6th.—Fire 278 Washington St. Eng. Co. 31 reports 11½

minutes delay at frozen hydrants. Fire originated on 1st floor and extended to cellar.

Feb. 7th.—Fire 93 Maiden lane. Eng. Co. 10 reports 30 minutes and Eng. Co. 29 3 minutes delay at frozen hydrants. Fire originated on 1st floor and extended to roof and adjoining building, 95 Maiden lane.

Feb. 8th.—Fire 162 Water St. Eng. Co. 6 reports 4 minutes delay at frozen hydrants. Fire originated on 1st floor and extended to 3d floor.

Feb. 9th.—Fire 644 Lexington Ave. Eng. Co. 8 reports 3 minutes delay at frozen hydrants. Fire originated on 3d floor and extended to roof.

Feb. 9th.—Fire 763 10th Ave. Eng. 2 reports 15 minutes delay at frozen hydrant. Fire originated on first floor and extended to 2d floor. Two children suffocated at this fire.

Feb. 9th.—Fire 74 Ann St. Eng. Co. 4 reports 15 minutes, Eng. Co. 6 4 minutes, Eng. Co. 12 5 minutes, Eng. Co. 29 6 minutes, and Eng. Co. 32 5 minutes. Fire originated on 1st floor and extended to roof.

Feb. 9th.—Fire 242 Canal St. Eng. Co. 31 reports 1 minute delay at frozen hydrant.

Feb. 9th.—Fire 335 8th Ave. Eng. Co. 14 reports 2 minutes, Eng. Co. 19 6 minutes, and Eng. Co. 34 8 minutes delay at frozen hydrants.

Feb. 9th.—Fire 80th Av. and 96th St. Eng. Co. 40 reports 3 minutes delay at frozen hydrants.

Feb. 9th.—Fire 422 3d Ave. Eng. Co. 8 reports 10 minutes and Engine Co. 16 1½ minutes delay for frozen hydrants.

Feb. 10th.—Fire 33d St., bet. 8th and 9th Aves. Eng. Co. 2 reports 5 minutes, Eng. Co. 14 6 minutes, Eng. Co. 16 5 minutes, and Eng. Co. 34 4 minutes delay at frozen hydrant. Fire originated on 2d floor and extended to roof.

Feb. 10th.—Fire 165 E. Houston St. Eng. Co. 17 reports 2 minutes delay at frozen hydrants.

Feb. 10th.—Fire 6 Centre Market place. Eng. Co. 2 reports 5 minutes delay at frozen hydrant. Fire originated in basement and extended to 1st floor.

Feb. 13th.—Fire 205 East 10th St. Eng. Co. 25 reports 2 minutes delay at frozen hydrant.

Feb. 14th.—Fire 38 West 25th St. Eng. Co. 16 reports 1 minute delay at frozen hydrants.

Feb. 15th.—Fire 628 East 9th St. Eng. Cos. 5 and 25 each report 10 minutes delay at frozen hydrants. Fire originated on first floor and extended to 4th floor. The bodies of Mrs. Wells, aged 39, and Ella Wells, aged — years, were found after fire was extinguished.

Feb. 15th.—Fire pier 23, E. R. Eng. Co. 29 reports 20 minutes trying and failed to thaw out frozen hydrant. Vessel on fire and considerably damaged.

869 Feb. 15th.—Fire 62 Rivington St. Eng. Co. 17 reports 1 minute and Eng. Co. 25 ½ minutes delay at frozen dydrant.

Feb. 16th.—Fire 230 East 19th St. Eng. Co. reports 5 minutes delay at frozen hydrant.

Feb. 16th.—Fire 76 Marks Place. Eng. Co. 25 reports 30 minutes delay at frozen hydrant.

Feb. 16th.—Fire 14 Essex St. Eng. Co. 9 reports 15 minutes and Eng. Co. 12, 5 minutes trying to thaw out frozen hydrants and failed.

Feb. 16th.—Fire 19 East 49th St. Eng. Co. 23 reports 5 minutes delay at frozen hydrant. Fire originated on 4th floor and extended to 3d floor.

Feb. 17th.—Fire 74 Ann St. Eng. Co. 6 reports 7 minutes delay at frozen hydrant.

Feb. 17th.—Fire 607 and 609 West 47th St. Eng. Co. 2 reports 3 minutes delay at frozen hydrant.

Feb. 17.—Fire 96 and 98 Mott St. Eng. Co. 20 reports 2 minutes and Eng. Co. 31, 37 minutes delay at frozen hydrants.

Feb. 18th.—Fire 2 West 38th St. Eng. Co. 8 reports 45 minutes and Eng. Co. 26, 5 minutes delay at frozen hydrant.

Feb. 18th.—Fire 619 and 621 Broadway. Eng. Co. 20 reports 25 minutes and Eng Co. 33, 2 minutes delay at frozen hydrants.

Feb. 19th.—Fire 40 Washington St. Eng. Co. 6 reports having to leave the hydrant, as it was froze to the opening. Fire originated on 1st floor and extended to roof.

Feb. 19th.—Fire 56 Mulberry St. Eng. Co. 7 reports 10 minutes trying to thaw out frozen hydrant, and failed.

Feb. 19th.—Fire 189 Duane St. Eng. Co. 7 reports 7 minutes and Eng. Co. 27, 10 minutes trying to thaw out frozen hydrants, and failed; and Eng. Co. 31 reports 5 minutes delay thawing out frozen hydrant.

Feb. 19th.—Fire 157 Mercer St. Eng. Co. 30 reports 1 hour and 10 minutes trying to thaw out frozen hydrant, and failed; Eng. Co. 33 reports 10 minutes delay at frozen hydrant.

Feb. 20th.—Fire 284 and 286 Front St. Eng. Co. 12 reports 25 minutes delay at frozen hydrant.

Feb. 21st.—Fire 334 East 11th St. Eng. Co. 28 reports 3 minutes delay at frozen hydrant.

Feb. 21st.—Fire 644 East 16th st. Eng. Co. 25 reports 42 minutes delay at frozen hydrant.

Feb. 21st.—Fire 574 Hudson St. Eng. Co. 30 reports 15 minutes delay at frozen hydrant.

Feb. 25th.—Fire 304 East 56th St. Eng. Co. 8 reports 20 minutes delay at frozen hydrants.

Feb. 27th.—Fire 165 and 167 Reade St. Eng. Co. 27 reports having to leave hydrant; it was impossible to thaw it.

M'ch 3d—Fire 81 East Broadway. Eng. Co. 9 reports 5 minutes delay at frozen hydrant. Fire originated in cellar and extended to 2d floor.

M'ch 4th.—Fire 53 Ann St. Eng. Co. 4 reports 5 minutes delay at frozen hydrant. Fire originated on 3d floor and extended to 4th floor.

M'ch 4th.—Fire 107 Duane St. Eng. Co. 4 reports 6 minutes and Eng. Co. 27, 15 minutes delay at frozen hydrants, and Eng. Cos. 6

and *6* each failed to thaw out hydrants after delaying 10 minutes. Fire originated on 2d floor and extended to 3d.

M'ch 6th.—Fire foot of 66th St. E. R. Eng. Co. reports 12 minutes and Eng. Co. 23, 3 minutes delay at frozen hydrants. Oil tanks on fire.

870 M'ch 6th.—Fire 227 East 6th St. Eng. Co. 25 reports 3 minutes delay at frozen hydrant.

M'ch 9th.—Fire 379 Grand St. Eng. Co. 17 reports 3 minutes delay at frozen hydrant. Fire orig. in cellar and extended to 1st floor.

M'ch 10th.—Fire 217 Canal St. Eng. Co. 20 reports 1½ minutes delay at frozen hydrant.

M'ch 12th.—Fire 70 and 72 Fulton St. Eng. Co. 32 reports 2 minutes delay at frozen hydrant.

M'ch 20th.—Fire 30 Old Slip. Eng. Co. 10 reports 10 minutes delay at frozen hydrant. Fire originated on 1st floor and extented to 4th floor.

M'ch 20th.—Fire 86 King St. (rear). Eng. Co. 8 reports 10 minutes delay at frozen hydrant.

M'ch 23d.—Fire 1106 1st ave. Eng. Co. 8 reports 6 minutes, and Eng. Co. 23, 2½ minutes delay at frozen hydrant. Fire originated on 1st floor and extended to 2d floor and to adjoining buildings, 1108 and 1110 1st Ave., and seven horses were burnt to death.

M'ch 28th.—Fire 46 West St. Eng. Co. 4 reports 10 minutes delay at frozen hydrant. Fire originated on 2d floor and extended to 4th floor.

M'ch 28th.—Fire 97 Green St. Eng. Co. 20 reports 48 minutes delay at frozen hydrant, and Eng. Co. 33 failed to thaw in 28 minutes.

March 29th.—Fire 99 Green St. Eng. Co. 30 reports that they found it impossible to thaw out frozen hydrant.

Ap'l 13th.—Fire 138½ Pitt St. Eng. Co. 11 reports 10 minutes delay at frozen hydrant, and had to leave it, as it was impossible to thaw it. Fire originated on 1st floor and extended to roof.

In addition to foregoing, details were made from the various companies from time to time with a steam fire-engine, with directions to visit the fire-hydrants in their respective districts for the purpose of thawing out those that were frozen, with the following result:

Seventy (70) hydrants thawed, occupying less than 15 minutes.
Forty-five (75) " " " between 15 and 30 do.
Twenty-six (26) " " " " 30 and 1 hour.
Twenty-seven (27) " " " more than 1 hour.
One hundred and twenty-one (121) hydrants impossible to thaw out.

The hydrants are thawed by attaching a small hose to a cock on the boiler of the engine, and inserting steam from the boiler into the hydrant.

Deposition of James Reid.

NEW YORK, *June* 9, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. James Reid; twenty-five; Jersey City; board of public works, Jersey City; am a clerk.

Int. 2. Have you in your custody the minutes of the board of water commissioners of Jersey City covering the year 1867?

Ans. I have, sir.

Int. 3. Do you find therein memoranda of the presentation and allowance of claims on account of the Niagara Manufacturing Company; and, if so, will you state under what date the first of such memoranda occurs, and what it is?

871 Ans. I do, sir. In minutes of the regular meeting held March 4, 1867, and in order of business presentation of claims, I find a claim of the Niagara Manufacturing Company for $35 was presented and referred to a committee on works in and out of the city. At the next regular meeting, held March 18, 1867, in the order of business of auditing of claims, I find the claim of the Niagara Manufacturing Company, $35 previously referred, was reported correct and ordered paid.

Int. 4. Will you refer to the minutes, and state what you find relating to the presentation and allowance of the next claim in order of the same company, and under what dates?

Ans. At the regular meeting held April 1, 1867, in order of business of presentation of claims, I find a claim of the Niagara Manufacturing Company for $92.40 was presented and referred to the committee on works in and out of the city; and at an adjourned regular meeting, held Thursday, April 18, 1867, in order of business of auditing of claims, I find the claim of the Niagara Manufacturing Company for $92.40, previously presented, was reported correct and ordering to be paid.

Int. 5. Do you find in these minutes of the board of water commissioners record of the presentation of subsequent claims by the Niagara Manufacturing Company and of the allowance of the same during the year 1867?

Ans. I do, sir.

(No cross-examination.)

JAMES REID.

Attest: WILLIAM BLAIKIE,
Special Examiner.

Deposition of John F. Ward.

NEW YORK, *June* 9, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. John F. Ward; forty-six; I reside at 133 Mercer street, Jersey City, and am a civil engineer.

Int 2. How long have you followed the profession of civil engineer, and what office did you hold in connection therewith in the year 1867?

Ans. About thirty years; in 1867 I was chief engineer and superintendent of the Jersey City water-works.

Int. 3. Did you during that year procure for the Jersey City water-works any hydrants manufactured by the Niagara Manufacturing Company of Lockport, N. Y., of which Mr. S. R. C. Mathews was a principal manager?

Ans. Yes, sir.

Int. 4. When was your first order given for such a hydrant? And if you have any memorandum to assist your memory on this point, please produce it in evidence.

Ans. I can't say as to the first order; I may have given an order before this letter which I have in my hand, for aught I know, but this letter which I produce is my order, written by me at the date upon it, Feb. 6, 1867.

The order produced is marked Complainants' Exhibit 10, W. B., special examiner.

Int. 5. Do you remember the construction of the first hydrant furnished you by the Niagara Manufacturing Company; and,
872 if so, will you refer to Complainants' Exhibit 8, and say how it agrees in construction with that so furnished you?

Ans. It appears to agree exactly with it.

Int. 6. Did you have any alterations made in hydrants subsequently furnished you by the Niagara Manufacturing Company; and, if so, what was their character?

Ans. I recollect that I had some made with spherical bell at the bottom; also I complained of the thread of the bottom being too fine, and that was altered afterwards to a coarser thread; otherwise I don't recollect; I may have had some brass nuts put in the top, or some other little alterations I don't recollect.

Int. 7. With the exceptions of these minor alterations referred to did the construction of the hydrants remain substantially the same as the first?

Ans. It did; yes, sir.

Int. 8. Will you refer to the plan or sectional model now produced and marked Complainants' Exhibit No. 11, W. B., special examiner, and state how the construction represented thereby compares with the hydrants you have testified about?

Ans. That is a model of one that was made for me with the spherical joint in the elbow. My recollection is that the first one was not made with a spherical joint.

Int. 9. It appears from the minutes of that board of water commissioners that at their meeting held March 4, 1867, a claim of the Niagara Manufacturing Company for $35 was then presented. Are you able to testify what the character of that claim was?

Ans. It must have been for one hydrant; we never bought anything but hydrants from them.

Int. 10. Will you again refer to your order of Feb. 6, 1867, and, taking special notice of the language, "as a sample," state whether you are able to testify any more definately whether or not this was the first order?

Ans. It appears from the language to be the first order, and I've no doubt it was.

Cross-examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 11. Was the payment of $35, which was claimed by the Niagara Company at your water commissioners' meeting of March 4, 1867, and afterwards allowed, payment for the hydrant ordered by this letter of Feb. 6, 1867, Complainants' Exhibit 10?

Ans. I have good many reasons for thinking it was the same; I believe it was.

JOHN F. WARD.

Attest: WILLIAM BLAIKIE,
Special Examiner.

COMPLAINANTS' EXHIBIT 10. W. B., Special Examiner.

SUPERINTENDENT AND ENGINEER'S OFFICE.
JERSEY CITY WATER-WORKS, JERSEY CITY, *Feb.* 6, 1867.

Niagara Man'f. Co.

GENTS: Please send us one of your fire-hydrants as a sample.

Yours truly, JOHN F. WARD,
Sup't & Eng.

873 *Deposition of Nathaniel B. Crenshaw.*

JUNE 12, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. My name is Nathaniel B. Crenshaw; thirty years; Germantown, Pennsylvania; am in the employ of R. D. Wood & Co.

Int. 2. Have you lately superintended or been present at the removal from the ground of a fire-hydrant in the city of Camden, New Jersey, on Second street, between Linden and Pearl streets?

Ans. The removal was made under my superintendence, and I saw the ground removed to within a foot, I suppose, of the bottom. I wasn't present at the moment of removal. I gave shipping directions after the hydrant was removed, and saw it at Florence within a day or two after removal.

Int. 3. Is that hydrant here present?

Ans. Yes, sir.

Int. 4. Of whose manufacture is the hydrant?

Ans. Of J. W. & J. F. Starr, of Camden, New Jersey.

Int. 5. Did you test the working of the hydrant before it was

taken up, and when the waste-valve was in sight, by opening the main valve?

Int. 6. What happened when the main valve was opened?

Ans. The water from the main flowed freely through the waste-valve during nearly the whole time of opening the main valve.

Int. 7. When did such free flow through the waste-valve become checked?

Ans. Not until just previous to the main valve being entirely open.

Int. 8. Will you produce in evidence the valve-rod, with the main valve and waste-valve thereon, belonging to this hydrant, and also the other parts of the hydrant itself?

Ans. I here produce them.

The hydrant and its parts are marked Complainants' Exhibit 12, W. B., special examiner. The valve-rod, with its valves, is designated as Exhibit 12 A, and the other parts of the hydrant as Exhibit 12 B, 12 C, etc.

(No cross-examination.)

NATH'L B. CRENSHAW.

Attest: WM. BLAIKIE,
Special Examiner.

Deposition of James R. Perry.

NEW YORK, *June* 10, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, and occupation?

Ans. James R. Perry; thirty-one last December; I reside at 332 Walnut street, Philadelphia, Pa.; I am an assistant book-keeper with Jesse W. Starr & Son, manufacturers of cast-iron gas-mains, constructors of gas-works and water-pipes.

Int. 2. Have you here present an order-book of the predecessors in business of your present employers, viz., of the firm of J. W. & J. F. Starr?

874 Ans. I have; at least I believe it to be so.

J. R. PERRY.

It is admitted by counsel on behalf of defendants that the order-book of J. W. & J. F. Starr shows a hydrant put down May 6, 1859, in Second street, between Linden and Pearl streets, Camden, N. J.

(No cross-examination.)

Attest: WM. BLAIKIE,
Special Examiner.

Evidence for Complainants in Reply,

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, Geo. Wm. Estabrook, special examiner.

BOSTON, *June* 15, 1876.

Present: Geo. L. Roberts, Esq., of counsel for complainants; Causten Browne, Esq., of counsel for defendants.

Deposition of Samuel R. C. Mathews.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, age, residence, occupation, and place of business?

Ans. Samuel R. C. Mathews; forty-seven years; residence in Philadelphi; manufacturer of fire-hydrants, at Florence, N. J.

Int. 2. With whom are you connected in business in the manufacture of hydrants, and are you and they complainants in this case?

Ans. With R. D. Wood & Co., of Philadelphia. We are connected in business and are complainants in this case.

Int. 3. Were you joint patentee with Washburn Race in the letters patent No. 19206, dated Jan. 26, 1858, afterwards extended, and reissued as No. 4887, dated April 30, 1872, and also in the letters patent No. 96959, dated Nov. 16, 1869, each for improvement in hydrants?

Ans. I was in both.

Int. 4. Is the said Washburn Race now living?

Ans. He is not. He died about three or four years since.

Int. When were you first connected in business with him, and where, and what was the nature of the business?

Ans. We became associated in business early in the year 1857, at Seneca Falls, N. Y., in the manufacture of force-pumps.

Int. 6. When and under what circumstances did you begin to manufacture hydrants?

Ans. We were experimenting during the summer of 1857, and, I think, commenced to manufacture in the fall of the same year.

Int. 7. Of what construction were the hydrants which you began to manufacture during the fall of 1857?

Ans. Similar to those described in our first letters patent, with the exception of the method of operating the rod or valve.

Int. 8. State all the differences between the hydrants so constructed and that described in the original patent mentioned.

Ans. The original patent represents the rod as moved by an eccentric at the top, while in those we manufactured the
875 motion was produced by what we term a revolving or sleeve-nut, with a thread working in a thread on the rod.

Int. 9. How long did you continue to manufacture fire-hydrants

of the description indicated in the last two preceding answers, where was such manufacture carried on, and under what style?

Ans. Under the style of Race & Matthews, until September, 1860, at Seneca Falls, N. Y.; under the style of Race, Mathews & Co., from September, 1860, until Oct. 18, 1864, at Lockport, N. Y.; under the style of the Niagara Manufacturing Company, a corporation, from Oct. 18, 1864, till August, 1868, at Lockport, N. Y.; under the style of H. M. Lloyd from August, 1868, to the summer of 1869, at Lockport, N. Y.; under the style of S. R. C. Mathews, from that time until the spring of 1870, also at Lockport; under the style of R. D. Wood & Co., from the spring of 1870 up to the present time, at Philadelphia.

Int. 10. Were any specific changes made in the construction of the hydrant first manufactured during the entire time specified in the last preceding answer; and, if so, what were their character?

Ans. The first material change that we made was to lengthen the flange forming the base of the hydrant at the level of the sidewalk to facilitate setting it at the proper height, so as to form a good appearance. The next was to change the form of the casing or frost-jacket so as to pass outside of the body of the hydrant, forming a telescopic joint with a vertical play to compensate for the heaving by frost, so that any change of position could be seen readily, and the casing driven back to its place when the frost was out of the ground without taking up or disturbing the hydrant, at the same time retaining a dead-air chamber round the hydrant in any position of the case, so far as affected by the frost heaving it. There were other minor changes. Those were the material alterations, but they involved some other minor changes in themselves.

Int. 11. What active participation did you have in this manufacture during the entire period mentioned?

Ans. I have had almost the entire managament from the beginning.

Int. 12. What opportunities have you had for examining the various kinds of hydrants in use in the country and of becoming acquainted with their practical working?

Ans. During the first years of the manufacture of hydrants I made occasional visits to the various cities where water-works had been introduced, and during the last six years have travelled from five to six months in the year throughout the United States and Canada on this business, and have become thoroughly familiar, I think, with all the different styles or varieties in use.

Int. 13. About how many hydrants of the later form of construction—that is, having the outside sliding case so turned, have been put into use by you and those connected with you in this manufacture?

Ans. I cannot state the exact number, but think there are between eight and nine thousand in use so constructed.

Int. 14. You have mentioned a change in the construction of your hydrants by which the case was made to embrace the hydrant by a joint at the top, instead of being embraced by a flanged ring

making the outside sliding-case, so termed. Under what circumstances was this change originated, and when?

Ans. We found that although there was a limited motion necessary in the mechanical construction of the case, passing inside of the flange, yet that the frost acted upon this casing and caused it to lift upon the hydrant proper, causing it to break at or near
876 its connection with the elbow. And this lifting of the casing being concealed by the projecting flange on the base of the hydrant was not noticed in practice, and could not be remedied under any circumstances without first taking up the hydrant, so as to leave the top of the casing exposed before it could be driven down. And consequently it was nearly inoperative for the purpose of any protection against the heaving action of the frost.

This change was first designed by Mr. Race and myself early in the spring of 1866—I think in March, perhaps earlier.

Int. 15. Will you give your reason for placing the date of the origination of the change in construction from a casing with an inside joint to one with an outside joint? And if you have any memoranda originally made by you by which your memory is assisted, please state what they are.

Ans. I caused an alteration to be make in a lithograph which we had previously, by Sage, Sons & Co., of Buffalo, N. Y., to show the casings passing upon the outside of the base of the hydrant; and instructions for this alteration were made at one of two visits made by myself to Buffalo, as I find from memoranda made by myself on the 28th of March, 1866, and the 4th of April, 1866, which are as follows:

			Cash.
1866, March 28.	By expense ac.	Expenses to Buffalo------	$1 75
" April 4.	By expense ac.	Expenses to Buffalo------	1 70

Those entries were made in the cash-book, kept by myself at the time, and referred to my individual expenses to Buffalo on the occasions named.

Upon one of those occasions, I cannot say which, I gave the directions to the lithographers in regard to the alteration of the lithograph to show an outside casing.

I also find an entry upon the same book, under date of May 10, 1866, as follows:

1866, May 10.	By Sage, Sons & Co.	P'd their draft------	$173 25

This entry related to the payment of a draft on the Niagara Manufacturing Company for several items of lithographing of bill-heads, letter-heads, etc, and included the expense of alterations in lithograph of hydrants.

Int. 16. Have you one of the lithographs so altered to show the casing with joint upon the outside of the hydrant; and, if so, will you produce it in evidence?

Ans. I have. This is the lithograph referred to.

(The witness produces a lithograph, which is marked by the examiner complainant's Exhibit 13, G. W. E., special examiner.)

Int. 17. Have you examined your cash-book carefully in order to ascertain whether or not there are any other items of expenses to Buffalo during the year 1866, prior to the payment of Sage, Sons & Co.'s draft; and, if so, with what result?

Ans. I have examined the cash-book carefully and find no entries between the first day of January, 1866, and the time of payment of this draft of expenses of myself to Buffalo with the exception of the two entries referred to, of March 28, 1866, and April 4, 1866.

Int. 18. What were the specific alterations of the old lithographic stone in order to produce the lithograph, Complainant's Exhibit 13.

Ans. The change was only on the sectional view of hydrant, shown on the right of lithograph, and consisted of a slight change
877 of the drawing so as to show the casing as passing on the outer side of base of the hydrant proper, at the surface of the ground, instead of passing inside and under, as in the original lithograph, and some alterations in the letter-press, substituting Niagara Manufacturing Company for Race, Mathews & Co., and some changes in the letter-press in the third item, which is as follows:

"3d. The frost cannot heave the hydrants, as the outside case (E) is detached and has room to play up and down six inches, thus accommodating itself to the ground without disturbing the hydrant or breaking the connection."

Int. 19. You have heretofore referred to a difference between the construction shown in the original patent of Jan. 26, 1858, by which the valve-rod was operated at the top, and the construction af the hydrants originally manufactured by Race & Mathews at Seneca Falls, and afterwards, in which a sleeve-nut was substituted for an eccentric; does the right-hand sectional drawing upon the lithograph, Exhibit No. 13, show such a nut marked A?

Ans. It does.

Int. 20. After having the alterations made in the lithograph, as stated, what steps were taken towards the construction of an outside case, embracing the hydrant proper at the top, and what was the specific character of the changes actually made?

Ans. Mr. Race and myself prepared the working drawings for the guidance of the pattern-maker, varying somewhat from the proportions shown in the altered lithograph, so as to make them substantially the same as shown in hydrant Exhibit 8.

Int. 21. Did you ever, in fact, construct a hydrant or prepare patterns for a hydrant in which the case had the precise form shown in the sectional drawing of the lithograph, Exhibit 13; and, if not, why not?

Ans. We did not; the objection was that in the elevation of the outer casing with that precise construction would injure the appearance of the base of the hydrant at the surface of the ground by projecting above the gradually contracting portion of the hydrant-stock, and destroy the symmetry of appearance of the hydrant.

Int. 22. What was your practice in respect to keeping the time of men employed by you at that time?

Ans. During the year 1866, as we employed a large number of

men, and were doing a great deal of machine work or job work, in addition to our regular manufacture, I found it advisable to provide all the men in the machinery or jobbing department with pass-books, in which they should enter each day the number of hours employed and the work employed upon, to facilitate making up my accounts.

Int. 23. State briefly what was the character of the work doing by the Niagara Manufacturing Company during the year 1866, in addition to whatever hydrants may have been made.

Ans. We were manufacturing steam-engines, pumps, skates, and a variety of other work, and doing a general machinery business.

Int. 24. Who altered the patterns for converting the old style of hydrant into one having an outside case like that shown in Exhibit 8, and when was this alteration of patterns made, as well as you recollect?

Ans. The alterations were made by Jared M. Gleason during May and June, 1866.

Int. 25. You mean Jared M. Gleason now of Erie, Penn., who has testified in this case, do you?

Ans. I do.

878 Int. 26. What was the condition of business during the latter half of the year 1866, so far as concerns the Niagara Manufacturing Company?

Ans. We were doing a great deal of work and were losing money pretty rapidly in some departments; our engine department I refer to. We were doing but little in hydrants at that time.

Int. 27. How much of a stock of hydrants of the old style had you on hand at the time of altering the patterns as stated?

Ans. I couldn't state exactly. My impression is it might have been from fifty to seventy-five. We had manufactured more largely during the previous winter in anticipation of orders from the Holly Manufacturing Company of Lockport, N. Y., who had been procuring their hydrants from us to use in connection with water-works of their construction.

Int. 28. When did the Niagara Manufacturing Company first make effort to solicit orders for hydrants of the new construction like Exhibit 8? And, if you aid your memory by reference to memoranda made by you at the time, state what they are.

Ans. I find an entry upon my cash-book, Dec. 1, 1866, as follows:

Cash.

1866, Dec. 1. By C. J. Lloyd, c'k, for trav. expenses ------ $150 00

And on Jan. 2, 1867, as follows:

Jan. 2. By expense ac., Lloyd's expenses to St. Louis, Chicago, etc. ---------- $150 00

These entries refer to cash furnished C. J. Lloyd, president of the Niagara Manufacturing Company, out of which to pay his expenses on a trip to the West for the purpose of effecting arrangements for

the sale of our other manufactured goods and the introduction of our improved fire-hydrants. The second entry of Jan. 2 shows that upon his return he was credited with the entire amount of the cash furnished as having been spent in the service of the company. On the same book, under date of Jan. 26, 1867, I find the following entry:

Cash.

1867, Jan'y 26. By expense acc't, Mathews' exp. to Balt., Phil., New York, etc. ---------- $126 75

This entry was for the expenses attending a trip of myself made between the fifth day of January and the twenty-fifth day of January to Baltimore, Philadelphia, New York, Jersey City, and probably a few other places, for the purpose of introducing and selling our hydrants.

All the entries heretofore referred to were made by myself at their respective dates, in their proper order, in the cash-book.

Int. 29. Did you keep an account of goods furnished as samples; and, if so, have you it here?

Ans. I did; and they are contained in a separate part of the sales-book of the Niagara Manufacturing Company, which I have here.

Int. 30. Is there contained in this account any mention of hydrants furnished as samples; and, if so, will you give the entries, and state to what style of hydrants they refer?

Ans. There is; the earliest is under the date of Dec. 28, 1866, and is as follows:

879 Dec. 28. George W. Wilson, 16 Court-House, Chicago, Ill.:
1 No. 1 fire-hydrant, as sample.

The next entry is as follows:

1867, Jan'y 2. B. F. Fox, Springfield, Ill.:
1 No. 1 fire-hydrant as sample.

The next entries are as follows:

1867, Feb'y 27. Elmira Water-Works Co., per I. S. Hobbie, sup't:

1 No. 1 fire-hydrant	40
Sample, less 10%	4
	36

Jos. O. B. Webster, ass't eng'r Croton water-works, Croton aqueduct dep.:

1 No. 1 fire-hydrant.
1 " 1 do. with cut-off.
Samples.

The first two entries, viz., that to Geo. W. Wilson, of Chicago, and B. F. Fox, of Springfield, Ill., were sample orders taken by C. J.

Lloyd on the trip previously referred to, and were hydrants made with our improved outside frost-casing, like Exhibit 8.

I am not sure which of us solicited the order entered Feb. 27 to Elmira Water-Works Co., but it was one of the same construction like Exhibit 8, and shipped on the date specified.

The subsequent entry to Joseph O. B. Webster, Croton water-works, N. Y., was solicited by myself and obtained at the time probably of my trip to New York.

Int. 31. Were either of these sample hydrants mentioned in the items quoted in the last preceding answer ever actually paid for?

Ans. None of them paid up to this time.

Int. 32. When was the first actual sale of this new-style hydrant like Exhibit 8 made, and what entry of the same appears in your sales-book, and by whom was the sales-book kept? And in this connection you may state in whose handwriting are the entries quoted in the last preceding answer.

Ans. The entries referring to samples mentioned in the last preceding answer are all in my handwriting and were made at the times of their respective dates. The sales-book was kept by me mostly, and all entries were made under my supervision. The first actual sale of this new-style hydrant was on Feb. 9, 1867, as shown by entry in the sales-book in my handwriting, as follows:

LOCKPORT, 1867.

Feb'y 9. Winsor Bros. & Minniss, Oil City, Pa.:

1 No. 1 fire-hydrant (new pattern)	$40 00
Shipped Jan'y 21st, less 10%	4 00
	$36 00
C't'g	25
	$36 25

880 Feb'y 11. Jersey City Water-Works Co., per order of —— Ward, Esq., sup't and eng'r:

1 No. 1 fire-hydrant (new pattern)	$35

The date of shipment to Winsor Bros. & Minniss, as I see by reference to the book, was Jan. 21, 1867, but not entered on sales-book until Feb. 9, as stated.

Int. 33. Did you receive the letter dated Feb. 6, 1867, from John F. Ward, superintendent and engineer of Jersey City water-works, heretofore introduced in evidence and marked Exhibit 10; and, if so, about when and what did you do in respect to it?

Ans. The letter was received in due course of mail, and a hydrant shipped on the eleventh day of February, 1867, to the Jersey City water-works. I produce the original shipping receipt to be marked as an exhibit in this case. (Examiner marks the receipt Complainants' Exhibit 14, G. W. S., special examiner.) This is the same hydrant charged of that date in the sales-book.

Int. 34. Have you any other memorandum with respect to the

hydrant sent to Geo. W. Wilson, mentioned in the item which you have quoted from the account of samples furnished; and, if so, will you produce it?

Ans. I have the original shipping receipt, dated Dec. 28, 1866, of the fire-hydrant shipped to Geo. W. Wilson, Chicago, which I here produce. (Examiner marked same Complainants' Exhibit No. 15, G. W. E., special examiner.)

It is agreed by and between counsel for the respective parties that the application of Washburn Race and S. R. C. Mathews for the patent No. 96959, granted to them Nov. 16, 1869, was filed in the Patent Office Oct. 29, 1868. Attest: Geo. Wm. Estabrook, special examiner.

Int. 35. Prior to the twenty-ninth day of October, 1866, had there been any hydrant of the construction shown and described in the patent No. 96959, granted Nov. 16, 1869, sold or on sale, or offered for sale by you or the Niagara Manufacturing Company, or by any one else to your knowledge?

(Objected to as leading.)

Ans. No, sir.

Int. 36. What was the custom of the Niagara Manufacturing Company in respect to the time of finishing hydrants?

Ans. Hydrants were never finished until after they were ordered, on account of the deviation in sizes of hose-nozzles, so that we never finished or painted them till we knew for what places they were designed.

Int. 37. Did the Niagara Manufacturing Company, during the year 1866, or at any time, have a sales-room?

Ans. They did not. We had store-rooms in which we kept our finished pumps, skates, etc., after they were papered; but as our business was done exclusively by agents, and through correspondence, we had no occasion for a sales-room. We did not do a retail business. When I say agents I mean the members of the company occasionally acted as agents in soliciting orders.

Int. 38. How have all your hydrants been attached to the elbow or supply pipe from the main, since you began their manufacture?

Ans. They have all been screwed into the elbow without exception.

Int. 39. What has been the character of their practical working, in respect to this feature of construction?

881 Ans. As far as my personal experience is concerned, and from the reports of those to whom we have furnished hydrants, it has been entirely satisfactory, and preferred to any other method of attachment in use.

Adjourned to 9.30, June 16, 1876.

Direct examination resumed:

Int. 40. Mr. Wm. Stevens, a witness on behalf of defendants in this case, has testified in regard to what he knows of seventy-five Race & Mathews' hydrants furnished the city of New York some

years since. Do you remember the circumstance; and, if so, what kind of hydrants were furnished?

Ans. I do; they were similar in all respects to Exhibit 8. They were manufactured by the Niagara Manufacturing Company of Lockport, N. Y.

Int. 41. Did you ever have any complaint made to you or to the Niagara Manufacturing Company in respect to the practical working of those hydrants, or have you any knowledge of any difficulties experienced in respect to them?

Ans. We never heard from the Croton aqueduct department, to whom they were furnished, anything in relation to them whatever, and no complaint was made in regard to them to us. I was personally informed by the chief engineer of the fire department at that time, Joseph L. Perley, that he considered our outside casing and method of taking up without digging as great advantages, but thought they were made too light for use in New York city.

Cross-examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 42. Did you ever sell any of your inside-case hydrants (by which I mean with the frost-jacket inside of an overlapping ring at the top) after you made and were ready to sell your outside-case hydrants, such as are covered by your patent of 1869?

Ans. My impression is that after that time we only sold them where they were to replace broken ones of the same description. We may have possibly sold a few; if we did it was in isolated cases, not in connection with city work.

Cross-int. 43. You are now furnishing, are you not, to the city of New York, hydrants in which the frost-jacket is so fastened to a flange in the elbow that it cannot be separately lifted by the frost?

Ans. We are not furnishing any hydrants directly to the city of New York, but are making hydrants for parties who are supplying New York of the description inquired of.

Cross-int. 44. You say that you paid Sage, Sons & Co., May 10, 1866, for making the alterations you have described in the lithograph of your hydrants. Have you any means of knowing when you had the new cuts or circulars struck off from the altered stone?

Ans. It was previous, of course, to the payment of the draft. We should not have paid the draft if the work had not been completed; or, I might say, some time between my two visits to Buffalo and the 10th of May, 1866, when the draft was paid.

Cross-int 45. I should understand, then, that the work for which this payment was made to Sage, Sons & Co. included the striking off of a certain number of copies from the altered lithograph stone. Did it; and, if so, about how many copies were struck off?

Ans. It did, but I think the number was small. It was
882 only intended for temporary use at that time—to save the expense of getting a new lithograph. I could not say how many. I should say not more than a hundred to the best of my recollection. It might possibly have been two hundred.

Cross-int. 46. For what use did you get these one or two hundred?

Ans. We were in the habit of having cuts and illustrations of all our manufactures for the reason stated in my direct examination that our business was done through agents and correspondence exclusively, and it was necessary to show our work as accurately as possible in that way. I will say in connection with this that the idea of altering the lithograph only occurred to me while in Buffalo arranging for my other work.

Cross-int. 47. Did you place these circulars or cuts of your slip-case hydrant, or some of them, in the hands of agents or correspondents after you received them from Sage, Sons & Co.?

Ans. None to my recollection. Our agents did nothing at all in relation to the hydrant business. That was attended to entirely by myself, excepting in one or two instances when Mr. Lloyd attended to it.

Cross-int. 48. When I asked you for what use you got these one or two hundred copies of the new hydrant lithograph, you gave as the reason the fact that your business was done through agents and correspondence exclusively, and that it was necessary to show your work as accurately as possible in that way. But now you say that your hydrant business was not done through agents. I ask you, then, a second time, for what use did you get these one or two hundred copies of the new hydrant lithograph?

Ans. For my own use, principally. And I wish to explain that in my previous answer, that the business was done through agents and correspondence, that I intended to convey the meaning that we did not see our customers personally at the manufactory, and that it was only by samples or cuts that we could effect sales. By the term agents I meant any parties offering our goods for sale.

Cross-int. 49. To enable agents at a distance to offer this new hydrant for sale, it was necessary that they should have either a sample of it to show the customer or a cut or illustration of them, I suppose?

Ans. It would have been necessary had we employed any agents for that purpose; but, as I said before, that business was attended to exclusively by myself, with the exception of one or two instances referred to.

Cross-int. 50. You say that these one or two hundred copies were for your own use principally. State what other use than your own you had in mind in that answer.

Ans. For any other member of the firm in case they had gone out on that business—if they had occasion to go out on that business.

Cross-int. 51. You have spoken of two journeys which were made in the latter part of 1866, one by yourself and one by Mr. Lloyd, in the course of which orders for the new hydrants were solicited. Did you and he, on those journeys, take some of these cuts or illustrations?

Ans. I presume we did—I have no doubt but we did.

Cross-int. 52. Do you remember the fact that you or he did?

Ans. I can say positively that I never went on any trip of the

kind without preparing myself with lithographs or samples. Probably the same is true of Mr. Lloyd.

Cross-int. 53. From the time these one or two hundred cuts were received from Sage, Sons & Co., in May, 1866, down to the time of the two journeys just referred to, where were they?

883 Ans. I always kept lithographs in the box in which they were received, and they were kept in my office.

Cross-int. 54. Do you mean to say that you remember that these cuts that I ask about were kept in your office during the time mentioned?

Ans. I do, as it had been my custom for several years previous to keep them in that way. The boxes were made to fit the full size of sheet.

Cross-int. 55. What did Mr. Race do in the matter of altering the lithograph drawing before it was sent to Sage, Sons & Co. to have the stone altered?

Ans. Mr. Race did nothing in regard to altering the lithograph; that, as I said before, occurred to me while in Buffalo; but we had previously arranged to change the hydrant so as to form an outside casing; the exact details had not been carried out and were not till after the operation of the lithograph.

Cross-int. 56. Is there anything in the style of the entries of what you call sample hydrants, to which entries you have referred, that shows them to have been the outside-case hydrants?

Ans. Not anything; simply my recollection of the facts that at the times that Mr. Lloyd and myself made our respective trips we determined to make a strong effort to introduce our improved hydrants.

Cross-int. 57. Were all your entries of sales of the outside-case hydrants made under the name "new pattern?"

A. No, sir; I only find two so marked in my books.

Cross-int. 58. Will you explain what your practice was in 1866 and 1867 as to entering goods under the head of samples, and what you did when those samples were returned, or accepted and paid for, as the case might be?

Ans. I entered them in a separate portion of the sales-book to distinguish them from actual sales, and it was my custom, when accepted or paid for, to carry them out into our sales.

Cross-int. 59. It seems by Mr. Ward's letter, Exhibit 10, dated Feb. 6, 1867, that he ordered one fire-hydrant as a sample. Is there any entry in the sample department of your sales-book of a sample hydrant sent to him or his works?

Ans. There is not. The hydrant ordered by Mr. Ward was really an actual order, what you might call a sample order, with the expectation of retaining and paying for it, as is the case usually with such instances. What we usually term samples are goods sent out on our own responsibility, parties merely agreeing to receive them and account for them if sold or accepted.

Cross-int. 60. Suppose Mr. Ward had written his letter within a month after your first lot of outside-case hydrants were made and

brought in from the factory, would you have filled that order or not?

(Objected to as inadmissible and incompetent.)

Ans. I presume I would, willingly.

Cross-int. 61. Your business has made you acquainted, I suppose, with the custom of cities and towns, and other institutions using hydrants, as to the depth at which they lay their mains, etc. Will you state whether it is their practice to lay the water-mains below what they suppose to be the frost or freezing point of the ground in their respective localities?

Ans. It is.

Cross-int. 62. And is it their practice also to have the elbows below the frost or freezing point?

884 Ans. It is presumably, but not always in practice. Opinions vary greatly as to the necessary depth.

Cross-int. 63. Do opinions vary at all as to having the water in the main and in the elbow below the freezing point of the ground?

Ans. They do not.

Cross-int. 64. If a hydrant is set with the elbow and main to which it belongs below the freezing point of the ground, and the valve apparatus works properly, so that the waste water escapes from the hydrant every time the hydrant is used (that is to say, opened and closed), is there any danger of freezing anything in the hydrant; if so, what?

Ans. There would be nothing to freeze in such an instance, except the water above the valve—that is, between the main and waste. But experience proves that in properly-constructed hydrants the water in the elbow or bend will freeze directly beneath the gutter sooner than the water above the valve on account of the less distance from the surface to the water in the elbow; and, although any properly-constructed hydrant with perfect valve and waste may be made of a length or depth below ground, so as to be perfectly secure from freezing, experience and statistics prove that this length or depth necessary for perfect safety varies greatly in hydrants of different construction.

Cross-int. 65. But all hydrants have to be of such length or depth that the elbow shall be below the freezing point of the ground, do they not?

Ans. They should be, most certainly.

Redirect examination:

Int. 66. In your answer to the forty-third cross-interrogatory you refer to certain hydrants which you are furnishing to parties for the city of New York. Is the construction of those hydrants within your discretion?

Ans. It is not; they are made from patterns made from working drawings furnished by the parties.

Int. 67. How do they compare in weight of metal with hydrants of your own pattern?

Ans. They are more than double the average weight of our hydrants of the same size, the principal difference in weight being in the bolted outside casing, which weighs, I think, about four or five times as much as our sliding casing made for hydrants of the same size.

Int. 68. What is the construction of these hydrants in respect to forming a dead-air chamber or otherwise around the stock of the hydrant?

Ans. Those manufactured by us are fitted accurately so as to form a dead-air chamber.

SAMUEL R. C. MATHEWS.

GEO. WM. ESTABROOK,
Special Examiner.

COMPLAINANTS' EXHIBIT 14. G. W. E., Special Examiner.

NEW YORK CENTRAL RAILROAD COMPANY,
LOCKPORT STATION, *Feb.* 11, 1867.

Received from Niagara Man'f'g Co. in apparent good order:

Articles.	Marked.	Weight or measure.
1 fire-hydrant.	Jersey City water-works, Jersey City, N. J.	

Owner's risk of breakage—

As described above, contents and value unknown, to be
885 transported by the New York Central Railroad Company to their warehouse at Albany, ready to be delivered to the part-entitled to the same; and it is expressly stipulated and agreed that the above prop. — upon the conditions endorsed hereon, which form part of this contract and of the consideration for carrying the same, and not otherwise, and that the company is not to be held liable for the loss of said property, or for any damage or injury to the same, or for any delay in the delivery thereof by any other carrier, cartmant, or freightman, after the same has been loaded, shipped, or sent from the company's warehouse at Albany aforesaid.

THE NEW YORK CENTRAL RAILROAD COMPANY,
By M. G. LAMPKINS, *Agent.*

COMPLAINANTS' EXHIBIT 15. G. W. E., Special Examiner.

NEW YORK CENTRAL RAILROAD COMPANY,
LOCKPORT STATION, *Dec.* 28, 1866.

Received from Niagara M'f'g Co. in apparent good order:

Articles.	Marked.	Weight or measure.
1 fire-hydrant.	Geo. W. Wilson, Esq., No. 16 Court-House, Chicago, Ill.	

Owner's risk of breakage—

As described above, contents and value unknown, to be transported by the New York Central Railroad Company to their warehouse at

Lee's Bridge, ready to be delivered to the part- entitled to the same; and it is expressly stipulated and agreed that the above property is transported upon the conditions indorsed hereon, which form part of this contract and of the consideration for carrying the same, and not otherwise, and that the company is not to be held liable for the loss of said property, or for any damage or injury to the same, or for any delay in the delivery thereof by any other carrier, cartman, or freightman, after the same has been loaded, shipped, or sent from the company's warehouse at Lee's Bridge aforesaid.

THE NEW YORK CENTRAL RAILROAD COMPANY,
By M. G. LAMPKINS, *Agent.*

Deposition of Hervey Waters.

BOSTON, *June* 16, 1876.

Direct examination by GEORGE L. ROBERTS, Esq., of counsel for complainants:

Int. 1. What is your name, and have you before testified in this case?

Ans. Hervey Waters. Yes.

Int. 2. Have you read or heard the testimony introduced in this case relating to the New York city hydrants, illustrated by the sectional medel, Defendants' Exhibit A, and also relating to the casings like Complainants' Exhibit 7, placed around such hydrants below ground?

Ans. Yes; I have heard read certain of the testimony, being substantially all that was necessary to understand the matter, as I suppose.

Int. 3. Will you compare the construction of this New York hydrant with that of the hydrant described in the reissue patent No. 4887, here in suit, and particularly those features which are referred to in the first and second claims thereof, and state how you find the two structures to agree or differ substantially.

886 Ans. The wooden jacket is like the iron jacket of the patent in being independent of the stock. I don't know that it is like it in anything else. It is unlike the iron case described in the patent in being liable to expand by moisture, so that the perpendicular joint at the top of the casing, where it surrounds the collar upon the hydrant proper, cannot be kept so close as to prevent considerable circulation of air. The difference between a dry case and a wet case, such as Complainants' Exhibit 7, where the inside diameter is nearly twelve inches, will be fully one-eighth of an inch; but there is another more important difference between Exhibit 7 and the case or jacket referred to in the claim of the patent. This Exhibit 7 has no support from the hydrant proper at the bottom, so as to ensure its proper relation to the hydrant. It is rammed up in the earth, as I understand it, and kept in position by the earth at the bottom, and by nothing else. This is not the case with the jacket described in the patent; that is so supported by the hydrant proper

or by the elbow connected with the hydrant proper that it cannot, by the carelessness of laboring men, be rammed out of its proper relation to the hydrant proper.

The wooden case of the New York hydrant was open at the bottom, as I understand it, like a tub or a churn without a bottom, so that if the same got pulled up by the frost there was a liability of the grit of the soil working in around the hydrant by means of the same—(that is, the soil) becoming saturated with the waste water, and flowing in like soft mud, so as to get inside the case and against the hydrant, thereby interfering with the waste parts of the hydrant. There is no such liability to difficulty in the case described in the patent, because, in that case, the jacket makes a close joint with a flange upon the elbow in which the hydrant is set.

Moreover, the wooden case is not cylindrical inside, but is conical. This Complainants' Exhibit 7 shows that the staves have been cut out inside, so as to make some approach to the cylindrical joint of the complainants' case; but it does not come up to it, and, therefore, when the case was pulled up by the frost, there would be a widening of the joint by the upward movement, in addition to the widening which I said would take place as the thing became saturated by the water. There is no such liability for either of those causes in the case or jacket described in the patent.

This wooden jacket is a sectional jacket. The jacket described in the patent is not a sectional jacket, so that in case of any driving down being necessary in a jacket, such as is practiced in the complainants' patent for an improvement in this jacket, it would be necessary, as it appears to me, to drive down all the staves separately, as they would not all be carried down by driving upon a single point, the same as would be done if the case were in a single solid piece, as it is in the complainants' patent referred to in the question.

The case described in the complainants' patent could not have been used in connection with the hydrant with which the wooden case was used. This is because the complainants' case is in a single piece, and such a case, made to fit the hydrant with which the wooden case is used, could not be got into place after the hydrant was put in its place; nor could the hydrant be got into place after the case was put in its place; and hence the necessity of making this wooden case in sections. The fact being, as I understand it, from the testimony of the witnesses, that this case, Exhibit 7, had to be taken apart to get it on to the hydrant after it was set, because the case could not go on over the hydrant, nor could the hydrant be fastened into place after the case was around it.

887 Int. 4. You have referred incidentally to the complainants' patent for an improvement upon the jacket described in the reissue just considered. Will you now compare the construction of the New York hydrant, illustrated by Exhibit A and Exhibit 7, with the construction of the hydrant described and shown in the patent No. 96959, and state more practically what substantial differences you find between them?

Ans. The case of the hydrant in the patent now inquired of has substantially the same construction at the bottom that it had in the

previous patent, upon which the second patent claims to be an improvement, but it is so modified at the top and the hydrant is so modified that the perpendicular joint between the casing and the hydrant is at the inside of the casing instead of being outside as it was before; and in this respect it is more like the New York hydrant than it was before. The general character of the case remains the same with this exception; and in this second patent now under consideration, and in consequence of the change I have mentioned, the jacket can be pulled up by the frost to a considerable extent, in fact to all desirable extent, without disturbing the hydrant proper in any degree, and afterwards the jacket can be driven down without disturbing the hydrant, and in this respect it is more like the New York hydrant than was the former one.

But there is the same difference between this hydrant case at the bottom and the New York case that I said there was between the hydrant case in the former patent and the New York one, that difference involving the same difficulties I have previously mentioned; and this hydrant case in the patent now under consideration differs from the New York hydrant case in its liability to expansion by moisture, and also in the difficulties of driving down after having been pulled up by the frost, the same as I said before in answer to the preceding question.

Moreover, this hydrant as a whole differs from the New York hydrant as a whole in being so constructed as to allow the removal of the hydrant proper without the removal of the case, which could not be done with the New York hydrant.

Int. 5. From the description of the improvement set forth in this later patent, No. 96959, what specific features belonging to the hydrant described in the former patent, reissue No. 4887, do you understand to have been retained?

Ans. All the beneficial ones. I don't understand by this that any of them are changed. The same features that are referred to in the first and second claims, consisting of a protecting case or jacket surrounding the body of the hydrant and forming a separate and movable part from the elbow D, substantially as and for the purposes set forth; the purposes being such that by them the hydrant case and hydrant alone may be detached and removed or withdrawn, as set forth in the patent, the same being accompanied by a dead-air or non-conducting chamber around the stock of the hydrant and below the surface of the ground.

Int. 6. You have mentioned in your third answer, as a characteristic of the construction of such a wooden casing as Exhibit 7, or as is illustrated by the sectional model Exhibit A, that the upheaval by frost is accompanied by a widening of the joint between the case and the hydrant. Will you compare this patent of the New York hydrant with the construction and mode of combination of case and hydrant described in the letters patent No. 96959, and state what differences you find between them in the particular referred to?

Ans. I have already answered that question, I think.
888 There is no such widening in the contrivance described in the patent, because the bore of the case is cylindrical and not conical.

Int. 7. Have you heard read such testimony as has been introduced in respect to the novelty works hydrant, said to be represented by Defendants' Exhibit B, so far as concerns the hydrant-stock and the casing which surrounds the same; and, if so, will you compare it with the hydrant described in complainants' reissue No. 4887, as to those features which are referred to in the first and second claims thereof, and state in what respects you find them to agree or differ substantially, so far as you are able to understand the description given of this hydrant represented by Exhibit B?

Ans. I understand that the novelty hydrant and the hydrant described in the patent referred to are alike in having a close air-chamber, and are alike in having a casing so connected with the hydrant and elbow as to maintain the proper relation to each other; but the method of the fastening at the bottom is such as to make the elbow and case for all practicable purposes consist of one piece, so that the case or jacket is not independent of the hydrant, as the case is in the patent inquired of.

The great importance of this difference will be readily understood by referring to the second patent of the complainants, when that, in consequence of this independence, the case can be pulled up by the frost without disturbing the elbow and without in any way injuring the relation of the case to the elbow for all practical purposes, which obviously could not be done in this novelty contrivance.

Another difference consists in the fact that the case as a whole, in the contrivance described in the patent, allows of the removal of the hydrant, which the case as a whole in the novelty hydrant does not.

I understand by the evidence that this hydrant proper could in some way be removed without removing the bottom portion of the case, but it is not clear to my mind how that could be done. It certainly could not be done without removing a part of the casing which, with the hydrant, constitutes the close air-chamber. But this is not true of the casing described in the patent, when no portion of the jacket used need be removed or is in fact removed, because the casing is in a single piece.

There is not in the novelty hydrant any single piece which, together with the hydrant, constitutes a close air-chamber, but there is a single piece which, with the hydrant, constitutes a close air-chamber in the contrivance described in the patent.

But the great and important difference is in the joint at the bottom of the case, where the same connects with the elbow in these two contrivances, that in the novelty hydrant being horizontal, while that in the patent is perpendicular. Therefore it is obvious that the novelty casing could not answer the purpose of the improvement described in the second patent, while that described in the first patent can answer the purpose.

But there is a difference between the novelty casing and the casing described in the first patent for the purposes of the first patent, as I have before stated in this answer. In the contrivance described in the patent the casing can be removed from the elbow without

difficulty because it is not fastened to the elbow. This cannot be done in the novelty hydrant, because it is fastened to the elbow, and fastened by bolts which must be removed before the casing can be removed.

Adjourned to June 17, at 10 o'clock a. m.

889 JUNE 17, 1886.

Int. 8. Have you heard read the testimony relating to the Camden hydrants, illustrated by the model Defendants' Exhibit C; and if so, will you compare the structure of the same with that described in the complainants' reissue 4887, and referred to in the first and second claims thereof, and state how you find the two structures to agree or differ substantially?

Ans. The case or jacket of the Camden hydrant is independent of the hydrant proper to a greater degree than is the case or jacket described in the patent. This model C does not represent the case or jacket as having any fixed relation to the hydrant proper, except it may be perpendicularly. I don't see that there was any particular relation horizontally, except the ramming up of the case in the earth. It differs in this respect from the jacket described in the patent, because that has a guide both at top and bottom to keep the jacket in proper relation to the hydrant horizontally. The jacket of this Camden hydrant does not, in connection with the hydrant, form a dead-air space around the hydrant, between the hydrant and jacket; that described in the patent does. The jacket in the Camden hydrant keeps the earth away from the hydrant, so that the earth cannot freeze to the hydrant, and so does the jacket described in the patent. The two jackets are substantially alike in this respect.

In the Camden hydrant the keeping of the earth away from the hydrant, as I have stated, maintains an open space between the jacket and the hydrant, into which the waste water can flow readily after the main valve of the hydrant is closed, and in this respect it is like the jacket described in the patent substantially.

This Camden jacket has the same fault as I said the New York jacket had in being open at the bottom, so that the grit is likely to be washed in by the waste water and impede the proper action of the waste-valve. This is a grave fault in this Camden hydrant, where, as will be seen by reference to the model C, the lower end of the jacket comes but a trifle below the top of the waste-valve—not more than half an inch in this full-sized model, so that the grit would be likely to work into this waste-valve by the action of the water if the jacket was kept entirely down to its place; but no such difficulty could happen with the jacket described in the patent, whether the jacket was kept entirely down to its place or whether it was pulled up by the frost, as it can be when improved at the top, as described in the second patent.

Int. 9. Will you also compare the structure of this Camden hydrant with that described in the complainant's second patent, No. 96950, and state how they agree or differ substantially, in addition

to such features as you have already considered belonging to the complainant's reissue 4887 as well?

Ans. The hydrant and the case are so combined and arranged in the patent as to allow the frost to pull up the jacket vertically without disturbing the relation of the jacket to the hydrant, or rendering the jacket liable to get out of place by the heaving of the frost. This is not true of the Camden hydrant. In that hydrant any considerable upheaval of the case would bring it in contact with the hydrant at the discharging nozzle. There is no means presented in the Camden hydrant which allows of the driving down of the jacket after it has been so pulled up by the frost, unless it be by taking away the upper part of the jacket; but the hydrant described in the patent can be so driven down without any change in the
890 jacket. Taking the Camden hydrant as a whole—the hydrant and the jacket together—it presents no ability [for] allowing the hydrant to be removed without disturbing the jacket, while the hydrant described in the patent does.

Int. 10. Have you heard read the testimony relating to the St. Louis hydrant, illustrated by the drawing, defendants' No. C; and, if so, will you compare the construction of the same with the structure described in the complainants' reissue No. 4887, and referred to in the first and second claims thereof, and state what substantial likeness and difference you find between them?

Ans. The St. Louis hydrant is much like the Camden hydrant, and differs from the hydrant described in the patent the same as I said that did, with one exception: The St. Louis hydrant has its jacket setting down upon a plate at its bottom, which plate is an enlargement of the elbow, so that in a warm climate, where the case would not get pulled up by frost, it would prevent any washing in of the grit, such as I said the Camden hydrant would be liable to; but there is no guide either at top or bottom of the case to keep it in proper relation to the hydrant horizontally, so that it has this and all other features which I mentioned in the Camden hydrant as differing from the jacket described in the patent.

Int. 11. Will you further compare the St. Louis hydrant with that described in the complainants' patent No. 96959, and state how you find the two structures to agree or differ, substantially?

Ans. I believe this St. Louis hydrant differs from the hydrant described in the patent No. 96959 the same as I said the Camden one did, and I believe both this and the Camden differ from the hydrant described in the patent in another feature, which it may be important to mention here, and that is, the hydrant described in the patent has a dead-air chamber between the casing and the hydrant proper, which is not found in either the Camden or St. Louis hydrants.

Int. 12. Have you heard read the testimony relating to the Ayres hydrant, represented by the defendants, model J, of which the iron hydrant, Defendants' Exhibit N, is said to be a sample, the several parts being designated by N^1, N^2, N^3, N^4; and, if so, will you compare the same with the structure described in the complainant's reissue 4887, and referred to in the first and second claims thereof, and

state what substantial likeness and differences you find between them?

Ans. In this Ayres hydrant the hydrant proper is protected from any contact with the earth by means of the casing, and so it is with the hydrant described in the patent. So in the matter of the dead-air chamber this hydrant comes somewhat near to the hydrant described in the patent, but doesn't quite come up to it. There are openings between the chamber and the atmosphere which are not found in the hydrant described in the patent. This Ayres hydrant has not an "independent" case. In this Ayres hydrant the jacket forms a part of the structure of the hydrant proper; the jacket described in the patent does not. This Ayres jacket has no vertical joints; the jacket described in the patent has two—one at the top and one at the bottom. This Ayres jacket is a sectional jacket, so constructed that it can't be taken out of place unless it is first divided into two parts. That is not the case with the jacket described in the patent, that being in the single piece. This Ayres jacket, constructed as it is at the bottom, would be perfectly useless in the contrivance described in the second patent, upon which this suit is brought, whatever modification might be made of the top of the jacket, as is done in the second patent with the jacket described in the first patent.

891 Int. 13. Please now compare this Ayres hydrant, Exhibit N, and represented by sectional model, Exhibit J, with the structure described in the complainants' second patent, No. 96959, and state how you find them to agree or differ substantially, in addition to the features already considered.

Ans. This Ayres hydrant has not the dead-air chamber of the hydrant described in the patent No. 96959. The Ayres jacket cannot be pulled up by the frost without disturbing the hydrant proper, while the jacket described in the patent can. This is because the Ayres hydrant, as a whole, is so constructed as not to allow any "end play or vertical motion."

Int. 14. Will you now refer to the testimony of Miles T. Connolly, contained on pp. 63 and 64 of the printed record, and of William Bramwell, found on pp. 114 and 115 of the printed record, relating to a hydrant in which the stock is said to have been attached to the elbow by a screw-joint, and the parts to have been constructed as represented in the sketch, Defendants' Exhibit M, and state what substantial likenesses and differences you find between this structure, so far as you are able to understand it from the testimony and the sketch, and the structure described in the complainants' reissue No. 4887, and referred to in the first and second claims thereof?

Ans. I find no difficulty in ascertaining from the evidence how the casing was set upon the elbow. I understand Exhibit M to represent substantially how the hydrant was constructed in this respect, there being, however, a slight discrepancy between the drawing and the evidence, which is not material perhaps. I understand the witness Bramwell to say that the casing was slightly flanged at the top and bottom, but I see no such flange upon Exhibit M.

Now, it will be obvious by reference to Exhibit M that there is no vertical joint between the jacket and elbow at the bottom of the jacket; there is a vertical joint between the casing and elbow in the contrivance described in the patent, reissue No. 4887; this is an important difference, as I have before stated in speaking of other jackets.

If the construction of the jacket at the top was the same as is represented by Exhibit M at the bottom, then there was no perpendicular joint there, while there is a perpendicular joint there in the hydrant described in the reissue No. 4887; but the testimony of the witness Bramwell upon this point is vague, as I understand it. The testimony to which I refer, to be found upon p. 115 of the printed record, is as follows:

"In the next place the solid cylindrical case, slightly flanged, top and bottom, was placed upon the elbow; the hydrant was then put in position, the grammet listed with white lead, screwed down in its place, forming a water-tight joint, said case being half an inch shorter than the distance between the under side of the surface flange and lower side of the foot flange, thus allowing ample space for compression, said case being large enough to slip over the hydrant proper, if required to be done so, when in position. A hole was inserted in the lower end for the escape of waste water oozing from the waste-valve, inserted near the foot."

Now, I am unable to understand from this how the connection between the casing and the hydrant at the top was made. He says the case was half an inch shorter than the distance between the under side of the surface flange and lower side of the foot flange, and I don't know what he means by the surface flange and foot flange.

If he means the under side of the flange upon the hydrant
892 at top, and the upper side of the flange upon the elbow at the bottom, then there must have been an opening in the top of half an inch, so that it was not a close or dead-air chamber; if he does not mean that, then I do not know what he does mean, and if he does mean that, then there was not only a vertical joint there, but there was no joint at all.

Int. 15. I find I have not referred you to the testimony of William Stevens in respect to this screw-joint hydrant, represented by the sketch Exhibit M; will you refer to his testimony, found on pp. 84 and 85 of the printed record, and consider it in connection with the subject of the last preceding interrogatory?

Ans. The testimony of Stevens coincides with what I have supposed Bramwell meant, only he makes the space at the top between the case and flange of the hydrant "about a quarter of an inch," while Bramwell, as I understand him, makes it about half an inch, so that there was no joint there according to the testimony of these witnesses, nor was there *was* anything there to keep the case in proper relation to the hydrant horizontally. But there is one thing stated by the witness Bramwell which puzzles me still.

He says the case was large enough to slip over the hydrant proper, if required to be done so, when in position. Now, if the casing was

larger than the flange upon the hydrant, so that this could be done, then there was no flange projecting over the casing when all were in position, so that it didn't matter whether the top of the casing was as high as the flange or not for the purposes of screwing in the joint.

Int. 16. Will you advert again to the St. Louis hydrant and compare the construction and arrangement of the main valve and waste-valve, therein contained, as shown in the drawing, No. C, with the construction and arrangement of the main valve and waste-valve described in the complainants' patent, reissue 4887, and state how you find them to agree or differ substantially?

Ans. In the St. Louis hydrant the waste-valve is a poppet-valve, while that in the patent is a slide-valve; and in consequence of this difference the valve described in the patent can be and is so arranged as to begin to close immediately upon the beginning of the opening of the main valve, and can be and is completely closed before the valve is fully open; this cannot be done with a poppet-valve; that cannot be closed untill the main valve is fully open. This drawing I understand to be the full size of the hydrant, and the poppet-valve at the top is represented as shutting down over a hub or cylinder to the extent of nearly one-sixteenth of an inch, so that if the thing be in complete order the valve will be closed when the main valve is within about a sixteenth of an inch of its extreme opening movement, while with the contrivance represented in reissue 4887 the waste-valve will be closed as soon as the main valve has moved a distance equal to the diameter of the hole which constitutes the waste-valve.

This difference has importance, especially if any grit, like coarse particles of sand or small pebbles, are allowed to get into the casing so as to be liable to get upon the end of this cylinder upon which the poppet-valve closes; for it will be obvious that in such contingency or accident the waste-valve will stand open, notwithstanding the main valve has been shoved as far down as such pebble will allow it to go, the pebble being between the valve face upon the stem and the valve face below, at the end of the cylinder, so that the waste-valve will stand open and the water will pass out into the earth as long as the main valve is open, thus saturating the earth around the hydrant to such an extent as to delay the escape
893 of the water from the hydrant case after the main valve is closed, and this would be very deleterious in cold weather, because, in the meantime, the water would be liable to get frozen between the hydrant and the case before the water was all exhausted from the air-chamber. A slide-valve is not liable to this difficulty.

Int. 17. Will you refer to the Camden hydrant, represented by the sectional model Exhibit C, and taking the construction of the waste-valve to be such as described in the sixth answer of the witness, Samuel A. Thomas, found on p. 44 of the printed record, in which he says, referring to the hydrant as he first got it up, "the valve-rod from the main valve to the collar on the valve-rod was all the way of the same diameter," and disregarding the enlargement shown in

the model, which the same witness says was made upon the valve-rod afterwards "by casting brass around it," and compare such arrangement and construction of the main valve and waste-valve with the arrangement and construction of the main valve and waste-valve described in the complainants' reissue No. 4887, and state how you find them to agree or differ substantially?

Ans. In this Camden hydrant the valve differs from the valve described in the reissue 4887 substantially the same as I said the St. Louis hydrant did; the waste-valve is a poppet-valve, worse, if anything, than the St. Louis valve, from the fact that the valve-seat is wider than in the St. Louis hydrant, and therefore more likely to retain obstructions upon the seat, which will prevent the valve from shutting closely and tightly.

This Camden valve is like the valve described in the patent in one of its features, and so is the St. Louis valve, which similarity I failed to mention in speaking of that valve; they are all alike in the simple fact that you can't close the main valve without opening the waste-valve, but they are not alike as to the manner of doing this.

In the St. Louis hydrant and in the Camden hydrant you can't begin to close the main valve without opening the waste-valve, and this is rather too much of a good thing. You can begin to close the main valve without opening the waste-valve in the contrivance described in the reissue, and not only begin, but can go a good way towards closing it without opening the waste-valve.

The difference between a poppet-valve and a slide-valve for the purposes of this hydrant contrivance are well illustrated in the model, Exhibit C, taken, as they are represented, with the brass enlargement upon the valve-rod beneath the collar, as testified of by one of the witnesses, and there were some difficulties which he speaks of attending the use of the hydrant before the brass enlargement was put on, which are in his evidence well stated, and going to show the importance of this change produced by the addition of the brass enlargement.

Before this brass enlargement the valve was a poppet-valve; this brass enlargement changed that from a poppet to a slide valve. It will be obvious, by reference to the model, that without the enlargement under the collar the waste-valve opens as soon as you begin to close the main valve; with the enlargement under the collar the waste-valve does not open until the enlargement passes above the bore into which it slides, and at that instant the main valve is nearly closed. According to this model the main valve cannot move over a tenth of an inch after the waste-valve opens, and if the enlargement were taken away the main valve couldn't move to close more than one-tenth of an inch without opening the waste-
894 valve as much as it is open when the main valve is entirely closed, when the hydrant was modified by the enlargement of the rod, as it is testified of by one of the witnesses.

Int. 18. Please examine the letters patent reissue No. 5745, dated Jan. 27, 1874, and granted to the defendants as the assignees of Zebulon E. Coffin, which has been introduced in evidence on behalf of

the defendants as Exhibit Q, and compare what you find to be therein described and referred to in the first claim thereof with what is described and referred to in the claim of the complainants' patent No. 96959, and state what likenesses or differences you find between the two structures, having regard only to what is characteristic and substantial, in view of the prior hydrants which you have already examined.

Ans. The two hydrants inquired of are alike for all the purposes referred to in the first claim of the defendants' reissue 5745, and what is referred to in the single claim of the complainants' patent No. 96959. There is some little difference in the phraseology of the patents, but the things referred to in the two patents are substantially the same. The patent No. 5745 refers to a frost-jacket closely surrounding the hydrant above ground and below the hose-plug and extending to the elbow or other casting to which the lower part of the hydrant is secured, said jacket being attached neither to the elbow nor the hydrant, and therefore having the capacity of being lifted by frost without disturbing the hydrant or the elbow or the joints, and also preventing cold air from dropping down into the space between the hydrant and the jacket. This language is entirely applicable to the hydrant described in the patent No. 69059, and so is the description in the body of the patent No. 9745, so far as that description relates to what the first claimant refers.

The patent No. 96959 in its single claim refers to a hydrant having a detached case so combined and arranged with a hydrant proper as to have an end play or vertical motion of several inches to compensate for the heaving by frost, the upper part of the same (to wit, the case) passing outside the main stock of the hydrant proper, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant. This language is entirely applicable to the hydrant described in the patent No. 5745 and referred to in the claim thereof, and so are the remarks concerning the hydrant in the body of the patent No. 96959 and the hydrant described to which the claim refers.

Int. 19. You have distinguished the hydrant described in the complainants' patent No. 96959 from the prior hydrants examined in this feature of construction, among others, namely, that the case or jacket is combined and arranged with the hydrant proper by means of vertical joints at top and bottom. Do you find this feature to be contained in the construction of the hydrant described in the defendants' patent reissue No. 5745 and referred to in the first claim thereof?

Ans. Yes; that feature is set out in the body of the defendants' patent, the joint at the bottom being such as to allow of the upheaving of the jacket by the frost without disturbing the body of the hydrant proper, and so as not to allow the earth to fall in below the bottom of the jacket around the hydrant proper; and the upper joint being such as to allow of the same upheaving without disturbing the closeness of the jacket, in order to prevent cold air from dropping down between the hydrant and the jacket.

Adjourned to June 19, at 11 o'clock.

895 JUNE 19, 1876.

Cross-examination by CAUSTEN BROWNE, Esq., of counsel for defendants:

Cross-int. 20. Will you refer to the plaintiffs' patent of 1869, No. 96959, if necessary, and point out what you find, if anything, in the drawing or in the specification directing the manner in which the hydrant body or hydrant proper shall be attached to the elbow?

Ans. There is nothing in the drawing. But the patent says:

"We obtained a patent, dated Jan. 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and embedded in the ground.

"Our present invention is an improvement upon that, and consists in so forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth."

This quotation I understand to refer to a previous patent, which previous patent I understand to be the original of reissue No. 4887. In that patent the stock is represented as screwed into the elbow.

Going back now to the patent, No. 96959, I find there described certain alterations in both the hydrant, stock, and jacket of the hydrant at the top of the jacket, but no description of how the bottom is constructed other than by this reference at the bottom of the hydrant-stock where it screws into the elbow. From this I should infer that the directions of the patent, No. 96959, were to make the hydrant at the bottom the same as it was made in the original patent of Jan. 26, 1858.

I observe that patent, No. 96959, refers to a patent, as I have before stated, dated Jan. 28, 1858, while the reissue refers back to the original patent of Jan. 26, 1858. This I understand to be a clerical error in some way, and that the patent referred to in the reissue and the patent referred to in patent No. 96959 is the same patent.

Cross-int. 21. Have you stated all that you find in the specification of the patent of 1869, which directly or indirectly prescribed the manner which the hydrant body or hydrant proper should be attached to the elbow?

Ans. I don't see anything else. But the patent says: "By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant. The heaving by frost is a constant source of trouble and expense in other hydrants by causing the elbows at the bottom connected with the 'main' to break, also throwing the hydrant itself out of position," etc.

Now, there is no difficulty in understanding from this that the hydrant is connected with the elbow of the main in some way, if the constructor did not know that well enough before, and it is clear from the drawing of the patent, as well as from some of the language of the patent, that the case could not be got out the hydrant after it was in place, and, therefore, the hydrant must be so constructed that it could be put in place after the case was set. How to put it in place after it was set is shown by the previous patent, and I under-

stand that a constructor might use that or some other contrivance by which he could put the hydrant in place after the case was set. I don't understand that the patentee confines himself to this particular fastening, but that is a question of law, I suppose.

Cross-int. 22. Will you please look at the Elmira hydrant,
896 so called, produced by the plaintiffs as a sample of their hydrants made under the patent of 1869, and state what distance in that hydrant the frost-jacket can be raised by the heaving of the earth.

Ans. About four inches.

Cross-int. 23. Assuming that we call the New York hydrant to be provided with a wooden frost-jacket like Exhibit 7 in place so that the interior of the jacket at the top will fit the exterior of the hydrant body at that point, and that such frost-jacket is lifted four inches by the heaving of the earth, what will be the width of the opening thus made between the jacket and the hydrant body, owing, as you have stated, to the tapering form of the wooden jacket?

Ans. Very nearly one-fifth of an inch all round.

Cross-int. 24. In the Novelty Works hydrant, represented by Exhibit (B), cannot the upper part of the case be removed from over the hydrant body when the attachment just above the ground line to the lower part of the case has been unbolted, assuming also that the hydrant has been unscrewed and the hand-wheel at the top of the hydrant has been removed?

Ans. Yes; I believe it can, after removing all the three parts mentioned.

Cross-int. 25. When this has been done the hydrant body can be unscrewed from the elbow, can it not?

Ans. Yes.

Cross-int. 26. Is there not in the St. Louis hydrant, represented by Exhibit No. C, a guide by which lateral movement of the frost-jacket at the bottom is controlled?

Ans. No; I believe not.

Cross-int. 27. Will not the outside edge of the flange on the bottom of the hydrant proper, and the nuts resting on such flange, prevent the bottom of the frost-jacket from moving laterally after it strikes against such flange or bolts?

Ans. Of course it will. But when the case does strike that flange upon one side it will touch it only in a single point, and will be three-quarters of an inch from the flange on the other side.

HERVEY WATERS.

Attest: GEO. WM. ESTABROOK,
Special Examiner.

Counsel for complainants introduces in evidence certified copies from the files of the Patent Office of the file-wrapper and contents in the matter of letters patent granted Washburn Race and S. R. Mathews, assignors to S. R. C. Mathews, dated Nov. 16, 1869, No. 96959,

which is marked Complainants' Exhibit 16, G. W. E., special examiner.

Attest: GEO. WM. ESTABROOK,
Special Examiner.

COMPLAINANTS' EXHIBIT 16. G. W. E., Special Examiner.

THE U. S. PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of
897 letters patent granted Washburn Race and S. R. C. Mathews, assignors to S. R. C. Mathews, dated Nov. 16, 1869, No. 96959, for improvement in hydrants.

In testimony whereof I, Ellis Spear, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this thirteenth day of March, in the year of our Lord one thousand eight hundred and seventy-six, and of the Independence of the United States the one hundredth.

[SEAL.] ELLIS SPEAR,
Acting Commissioner.

Petition.

Model 1, dr. $15, c'r't.

To the Commissioner of Patents:

Your petitioners pray that letters patent may be granted to them for the invention set forth in the annexed specification.

And they hereby authorize J. Fraser & Co., of Buffalo and Rochester, N. Y., and their associate attorney at Washington, D. C., to act as their attorneys in presenting and prosecuting this application, with full power to alter and amend the drawings, specification, and claims, and to receive the patent when granted; and also to prosecute or defend in any interference which may be declared before or after the issue of the patent, and to perform whatsoever acts may be lawfully required in the premises as fully as they might do if personally present.

Dated at Lockport, N. Y., Oct. 15, 1868.

WASHBURN RACE.
S. R. C. MATHEWS.

[50. Fifty cents. J. F. & Co. Oct., 1866. Conveyance. 50.]

Specification.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Lockport, in the county of Niagara and State of New York, have invented a certain new and useful improvement in hydrants; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Fig. 1 is a sectional elevation of our improved hydrant.

Fig. 2 is a horizontal cross-section.

Like letters of reference indicate corresponding parts in both figures. We obtained a patent, dated Jan. 28, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and embedded in the ground.

Our present invention is an improvement upon that, and consists in so forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings, A indicates the hydrant, the part *a* resting above ground, and the stock *b* being embedded.

The loose case or jacket B, which surrounds the stock, is made of graceful cylindrical outline, so as to conform to the general
898 symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders *g g*, which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply inclosed. The lower end of the case preferably shuts into a flange, *h*, of the main elbow connection C, and it may be centered to prevent axial turning by a sleeve, *c*, which rests in a groove, *d*.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant. The heaving by frost is a constant source of trouble and expense in other hydrants, by causing the elbows at the bottom, connecting with the "main," to break, also throwing the hydrant itself out of position. While we remedy this difficulty by giving the desired end play, we at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

Another great advantage of our invention is that the hydrant can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention, and desire to secure by letters patent, is the detached case B, so combined and arranged with hydrant A as to have an end play or vertical motion of several inches, to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
JOHN VAN HORN.
ELLSWORTH ELY.

Oath.

STATE OF NEW YORK, } ss:
County of Niagara, City of Lockport, }

On this fifteenth day of October, 1868, before me, the subscriber, a justice of the peace, personally appeared Washburn Race and S. R. C. Mathews, and made solemn oath that they verily believe themselves to be the original and first inventors of an improvement in hydrants, as within described, and that they do not know or believe that the same was ever before known or used, and that they are citizens of the United States.

A. TORRANCE,
Justice of the Peace.

899

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 17, 1868.

W. Race and S. R. C. Mathews, care J. Fraser & Co., Rochester, N. Y.

SIRS: Please find below a communication from the examiner in relation to your application for a hydrant, filed Oct. 29, 1868.

Very respectfully,

——— ———,
Commissioner.

EXAMINER'S ROOM No. 96.

A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention.

T. C. CONNOLLY, *Examiner.*

Memorandum of Fee Paid at U. S. Patent Office.

Inventors, Race & Mathews. Cert., $20.
Invention, hydrant.
Date of payment, Nov. 5, 1868.
Final fee, $20.00. Certificate.
Solicitors, J. Fraser & Co.
Patent to issue to assignees. (Ass't filed Nov. 5, 1869.)
Race & Mathews. The claim describes the invention.
No. 96959.
Washburn Race and S. R. C. Mathews, ass'ors to S. R. C. Mathews, of Lockport, county of Niagara, State of New York.
Hydrants.

Rec'd Oct. 29, 1868. Petition, affidavit, specification, drawing, model, cert., deposit, $15.00, Oct. 29, 1868. Cash. Add'l fee cert., $20.00, Nov. 5, 1869. Add'l fee, cash.
Examined Oct. 21, '69. Connolly.
Issue, Grinnell, Oct. 21, '69.
Patented Nov. 16, 1869. O.
Recorded, vol. —, page —.
Circular, Oct. 22, 1869.

J. FRASER, & CO.,
Rochester, N. Y.

Additional Evidence for Complainants,

Taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, Geo. Wm. Estabrook, special examiner.

BOSTON, *Sept.* 27, 1876.

Present: Geo. L. Roberts, Esq., of counsel for complainants; Causten Browne, Esq., of counsel for defendants.

Counsel for complainants introduces in evidence a certified duplicate of the model belonging to the application for letters patent No. 96959, granted Washburn Race and S. R. C. Mathews, as-
900 signors to S. R. C. Mathews, Nov. 16, 1869, which is marked Complainants' Exhibit 17, G. W. E., special examiner.

Attest: GEO. WM. ESTABROOK,
Special Examiner.

UNITED STATES OF AMERICA, } ss:
Massachusetts District, }

I, John G. Stetson, clerk of the circuit court of the United States for the first circuit and district of Massachusetts, certify that the foregoing is a true copy of the record and of all proceedings in the cause in equity entitled Samuel R. C. Matthews *et al.*, complainants, *v.* The Boston Machine Company *et al.*, defendants, in said circuit court determined.

In testimony whereof I hereunto set my hand and affix the seal of said circuit court, at Boston, in said district, this sixth day of October, in the year of our Lord one thousand eight hundred and seventy-seven, and of the Independence of the United States the one hundred and second.

[SEAL.] JOHN G. STETSON, *Clerk.*

Bond to Party on Appeal.

Know all men by these presents that we, Samuel R. C. Matthews and Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, all of Philadelphia, in the State of Pennsylvania, as principals, and —— ——, are held and firmly bound unto the Boston Machine Company and William E. Coffin, president, W. H. Hart, treasurer, and Charles Carr, superintendent, of said company, all of Boston, in the State of Massachusetts, in the full and

just sum of fifteen hundred dollars, to be paid to the said Boston Machine Company, William E. Coffin, W. H. Hart, and Charles Carr, their certain attorney, executors, administrators, or assigns; to which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

Sealed with our seals and dated the sixth day of October, in the year of our Lord one thousand eight hundred and seventy-seven.

Whereas lately, at a circuit court of the United States within and for the district of Massachusetts, in a suit in equity depending in said court between said Samuel R. C. Matthews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, complainants, and the said Boston Machine Company, William E. Coffin, W. H. Hart, and Charles Carr, defendants, decree was rendered against Samuel R. C. Matthews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, complainants, and the said Samuel R. C. Matthews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, complainants, having obtained an appeal to remove the said cause to the Supreme Court of the United States to reverse the decree in the aforesaid suit, and a citation directed to the said Boston Machine Company, Wm. E. Coffin, W. H. Hart, and Charles Carr, citing and admonishing them to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October current, to wit, on the 3rd Monday of October term of said Supreme Court:

Now, the condition of the above obligation is such that if the said Samuel R. C. Matthews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood shall prosecute their said appeal to effect and answer all damages and costs
901 if they fail to make their plea good, then the above obligation to be null and void; otherwise to remain in full force and virtue.

RICHARD WOOD. [L. S.]
E. R. WOOD. [L. S.]
SAM'L R. C. MATTHEWS. [L. S.]
GEORGE WOOD. [L. S.]
BENJ. V. MARSH. [L. S.]
H. HENDERSON. [L. S.]
WALTER WOOD. [L. S.]

Signed, sealed, and delivered in presence of—
N. B. CRENSHAW,
As to Richard, Edw. R., Geo., & Walter Wood.
WALTER WOOD,
As to Benj. V. Marsh & Henderson [&] S. R. C. Matthews.

Approved: G. F. SHEPLEY,
Circuit Judge, First Judicial Circuit.

A true copy of the bond taken by the judge at the time of allowing the appeal named in said bond, which bond is on file in the

office of the clerk of the circuit court of the United States for the first circuit and district of Massachusetts.

Attest: JOHN G. STETSON,
Clerk U. S. C. C., Mass. Dist.

(Indorsement on cover:) No. 246. Samuel R. C. Matthews *et al.*, appellants, *vs.* The Boston Machine Company *et al.* Massachusetts C. C. U. S. Filed 10th October, 1878.

902 Supreme Court of the United States. October Term, 1881.

SAMUEL R. C. MATHEWS, RICHARD WOOD, EDWARD R. Wood, George Wood, Randolph Wood, and Walter Wood, Appellants,
vs.
THE BOSTON MACHINE COMPANY—William E. Coffin, President; W. H. Hart, Treasurer, and Charles Carr, Superintendent. } No. 35.

Appeal from the circuit court of the United States for the district of Massachusetts.

This cause came on to be heard on the transcript of the record from the circuit court of the United States for the district of Massachusetts, and was argued by counsel.

On consideration whereof it is now here ordered, adjudged, and decreed by this court that the decree of the said circuit court in this cause be, and the same is hereby, affirmed with costs, 27th March, 1882.

I, James H. McKenney, clerk of the Supreme Court of the United States, do hereby certify that the foregoing printed pages, numbered from one to one hundred and fifty-seven, inclusive, and one manuscript page, contain a true copy of the transcript of record and of the decree of said Supreme Court in the case of Samuel R. C. Mathews *et al.*, appellants, *vs.* The Boston Machine Company *et al.*, No. 35, October term, 1881, as the same remain on the files and records of said Supreme Court.

In testimony whereof I hereunto subscribe my name and affix the seal of said Supreme Court, at the city of Washington, this 17th day of April, A. D. 1884.

[Seal Supreme Court.]

JAMES H. McKENNEY,
Clerk Supreme Court U. S.

903 "EXHIBIT FILE-WRAPPER AND CONTENTS, BAILEY ORIGINAL PATENT.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the letters patent granted T. R. Bailey, Jr., March 10, 1868, number 75344, for improvement in hydrants.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 16th day of May, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[SEAL.] BENJ. BUTTERWORTH,
Commissioner.

904 *Petition.*

To the Commissioner of Patents of the United States of America:

The petition of T. R. Bailey, Jr., of Lockport, in the county of Niagara and State of New York, respectfully represents:

That your petitioner has invented a new and improved hydrant fire-plug, which he verily believes has not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters patent of the United States of America may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid fifteen dollars into the Treasury of the United States and otherwise complied with the requirements of said act. And he hereby authorizes O. D. Munn, S. H. Wales, and A. E. Beach, of the firm of Munn & Co., of the cities of New York and Washington, or their accredited agents, to act as his attorneys in presenting the application and in making all such alterations and amendments as may be required and to sign his name to the drawings.

[Inter. Revenue. T. R. B., Jr. Sept. 7, '67. United States. Conveyance. Fifty cents.]

T. R. BAILEY, JR.

905 *Oath.*

STATE OF NEW YORK, *County of Niagara,* } ss:

On this seventh day of September, 1867, before the subscriber, a notary public in and for said county, personally appeared the above-named T. B. Bailey, Jr., and made solemn oath that he verily be-

lieves himself to be the original and first inventor of the within-described hydrant fire-plug, and that he does not know or believe that the same was ever before known or used, and that he is a citizen of the United States.

{ Seal Lockport, Niagara County, N. Y. }
{ James R. Compton, Notary Public. }

J. R. COMPTON,
Notary Public in and for Niagara County, N. Y.

To all whom it may concern:

Be it known that I, T. R. Bailey, of Lockport, in the county of Niagara and State of New York, have invented a new and improved hydrant fire-plug, and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

This invention relates to a new and improved method of constructing fire plugs or hydrants.

906 And the invention consists in operating a cylinder valve in a suitable case, and in the arrangement and connection of parts connected therewith, as hereinafter described.

Figure 1 represents a longitudinal central section of the hydrant, showing the parts of which it is composed and the manner of their arrangement.

Figure 2 is a cross-section of figure 1 through the line *x x*.

Similar letters of reference indicate corresponding parts.

A represents the hydrant tube from which the water is discharged.

B is the horizontal section, which is connected with the water "main" and which forms the valve-chamber.

C is a loose casing around the hydrant tube for protecting the tube from dirt, etc.

D is the cylinder valve, which has its seat at its lower end on elastic or leather packing, secured in a groove, as seen in the drawing at (*a*).

E is a rod, having a screw-thread on its upper end, by which the valve is operated.

F is a sleeve nut, which engages with the screw on the rod, raising and lowering it as the nut is turned.

This nut is turned by a wrench on the head G.

The sleeve-nut is secured in the cap of the hydrant by a collar and packing under the hollow cylinder stuffing-box H, as seen in the drawing.

J is a yoke, which is attached to the rod E by a set-screw and which is secured in the tube A and prevented from turning as it moves up and down by projecting lugs, as seen in figure 2.

907 And it will be seen that the arrangement is such that the rod and valve may be raised and lowered without being rotated.

This secures a uniform and perfect bearing of the valve on its seat, the packing (*a*) remaining undisturbed.

Provision is made for the discharge of the waste water by an

orifice beneath the valve D, marked *f*, which orifice is opened and closed by valve, marked (*g*), as seen in the drawing.

(*h*) is a wing on the top of this valve.

As the cylinder-valve D descends the annual flange (*i*) on its inside strikes the wing *h* and raises the valve, as seen in the drawing, thus allowing any water which may remain in the hydrant to escape through the orifice (*f*) and aperture (*k*).

It will thus be seen that no water will be left in the hydrant to freeze in cold weather.

The tube A is secured to the horizontal section B by a ring nut (*m*), which contains recesses for packing rings around the valve, as seen at (*n*) (*n*).

Packing around the valve is also secured by another ring-nut (*o*), and also under the end of the tube A, as seen in the drawing.

P represents the discharge-pipe, with a screw for the attachment of the hose, and a cap-piece for covering the pipe when the hydrant is not in use.

Having thus described my invention, I claim as new and desire to secure by letters patent:

First. A hydrant or water-plug constructed substantially as shown and described—that is to say, with the parts A and B connected together, as shown, and with a cylinder-valve and a waste-water valve connected and operated in combination substantially as herein specified.

908

Erase. Insert am'd't.

Second. In combination with the parts A, B and valve D the case C, substantially as and for the purpose described.

Third. The stuffing-box H in the cap of the hydrant, substantially as set forth.

T. R. BAILEY, JR.

Witnesses:
GEO. W. PERRIGO.
L. H. HILL.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *October* 24, 1867.

T. R. Bailey, care Munn & Co., Wash., D. C.

SIR: Please find below the communication of the examiner in charge in the matter of your application for patent for a hydrant, filed Sept. 16, 1867.

Very respectfully,

——— ———,
Commissioner.

EXAMINER'S ROOM No. 96.

In the matter of the application above referred to the spec'n is sent pencil-marked for revision.

T. C. CONNOLLY, *Examiner.*

WASHINGTON, D. C., *November 1st*, 1867.

Hon. T. C. Theaker, Com'r of Patents.

SIR: In the matter of the application of T. R. Bailey, Jr., for letters patent for an improved hydrant fire-plug, the specification is hereby amended by erasing the 2d and 3d claims, inserting in lieu thereof the following, viz:

909

Insert as 2d clause claim.	2d. "The arrangement of the parts A, B, valve D, case C, and stuffing-box H, as herein described for the purpose specified."

The specification is returned herewith and the case respectfully submitted for reconsideration.

Your ob't servants, MUNN & CO.

(30.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Nov.* 30, 1867.

T. R. Bailey, care Munn & Co., Wash., D. C.

SIR: Please find below the communication of the examiner in charge in the matter of your application for patent for a hydrant, filed Sept. 16, 1867.

Very respectfully,

——— ———,
Commissioner.

EXAMINER'S ROOM No. 96.

In the matter of the application above referred to the present is regarded as merely an arbitrary claim for the juxtaposition of parts. The hydrant proper, the main, the external case, and the plug are essentials in most hydrants. The packing through which the rod works has no necessary relation to these, and, a trite subject itself, it cannot impart patentability to other parts because of forming part of the same general machine. If it could there are few productions of the joiners' skill that might not be patentable. Sp. am't sent.

T. C. CONNOLLY, *Examiner.*

910

WASHINGTON, D. C., *December* 6, 1867.

Hon. T. C. Theaker, Com'r of Patents.

SIR: In the matter of the application of T. R. Bailey for letters patent for an improved hydrant we have the honor to request the citation of a definite reference pertinent to the claim as now drawn.

The specification and amendment are herewith returned.

Your ob't servants, MUNN & CO.

46
46 1867. Connolly.

No. 75344.

(In red ink.) Reissued March 14, '76, No. 6990.

T. R. Bailey, Jr., of Lockport, county of Niagara, State of New York.
Hydrant fire-plug.
Rec'd Sept. 16, 1867.
Petition, Sept. 16, 1867.
Affidavit " " "
Specification, Sept. 16, 1867.
1. Drawing " " "
Model " " "
Cert. dep. " " "
1. Cash, $15, Sept. 13, 1867.
Add'l fee cert.
1. " " cash, $20, Feb. 27, '68.
Examined Dec. 17, 1867. Connolly.
2. Issue A. M. Stout, Dec. 20, '67.
4. Patented March 10, 1868.
Recorded vol., — page—.
Circular, Dec. 20, 1867.
Munn & Co., pres't.

1867.

911 1867.

Oct. 24, '67, sp. sent.
Nov. 30, '67, sp. dr. sent.
Imp't in hydrants.
Drg., $1.25.
50 cts.
Ex'd: M. McK.
J. A. W.

1867.

(For drawing see page III, *supra*.) 101.

912 UNITED STATES PATENT OFFICE.

T. R. BAILEY, Jr., of Lockport, New York.

Improvement in Hydrants.

Specifications forming part of Letters Patent No. 75344, dated March 10, 1868.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the county of Niagara and state of New York, have invented a new and improved hydrant fire-plug; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being

had to the accompanying drawings forming part of this specification.

This invention relates to a new and improved method of constructing fire plugs or hydrants, and the invention consists in operating a cylinder-valve in a suitable case, and in the arrangement and combination of parts connected therewith, as hereinafter described.

Figure 1 represents a longitudinal central section of the hydrant, showing the parts of which it is composed and the manner of their arrangement. Fig. 2 is a cross-section of Fig. 1 through the line *x x*.

Similar letters of reference indicate corresponding parts.

A represents the hydrant-tube, from which the water is discharged. B is the horizontal section, which is connected with the "water-main," and which forms the valve-chamber. C is a loose casing around the hydrant-tube, for protecting the tube from dirt, etc. D is the cylinder-valve, which has its seat at its lower end on elastic or leather packing secured in a groove, as seen in the drawing, at *a*. E is a rod, having a screw-thread on its upper end by which the valve is operated. F is a sleeve-nut, which engages with the screw on the rod, raising and lowering it as the nut is turned. This nut is turned by a wrench on the head G. The sleeve-nut is secured in the cap of the hydrant by a collar and packing under the hollow cylinder stuffing-box H, as seen in the drawing. J is a yoke, which is attached to the rod E by a set-screw, and which is secured in the tube A, and prevented from turning, as it moves up and down, by projecting lugs, as seen in Fig. 2; and it will be seen that the arrangement is such that the rod and valve may be raised and lowered without being rotated. This secures a uniform and perfect bearing of the valve on its seat, the packing *a* remaining undisturbed.

Provision is made for the discharge of the waste water by an orifice beneath the valve D, marked *f*, which orifice is opened and closed by a valve marked *g*, as seen in the drawing; *h* is a wing on the top of this valve.

As the cylinder-valve D descends the annular flange *i* on its inside strikes the wing *h* and raises the valve, as seen in the drawing, thus allowing any water which may remain in the hydrant to escape through the orifice *f* and aperture *k*.

It will thus be seen that no water will be left in the hydrant to freeze in cold weather.

The tube A is secured to the horizontal section B by a ring-nut, *m*, which contains recesses for packing rings around the valve, as seen at *n n*. Packing around the valve is also secured by another ring-nut, *o*, and also under the end of the tube A, as seen in the drawing.

P represents the discharge-pipe, with a screw for the attachment of the hose, and a cap-piece for covering the pipe when the hydrant is not in use.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. A hydrant or water-plug, constructed substantially as shown and described—that is to say, with the parts A and B connected

together as shown, and with a cylinder valve and a waste-water valve connected and operated in combination, substantially as herein specified.

2. The arrangement of the parts A, B, valve D, case C, and stuffing-box H, as herein described, for the purpose specified.

T. R. BAILEY, JR.

Witnesses:
GEO. W. PERRIGO.
L. H. HILL.

913 "EXHIBIT-FILE WRAPPER AND CONTENTS, BAILEY REISSUE."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these present shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the reissue letters patent granted Thomas R. Bailey, Jr., March 14, 1876, number 6990, for improvement in hydrants.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 16th day of May, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[SEAL.] BENJ. BUTTERWORTH,
Commissioner.

914 Hon. Commissioner of Patents:

SIR: Your petitioner, of Lockport, New York, prays that he may be allowed to surrender the letters patent for improvement in hydrants, granted to him March 10, 1868, and No. 75344, whereof he is now sole owner, and that letters patent may be reissued to him for the same invention upon the annexed amended specification.

Accompanying this petition is an abstract of title, duly certified, as required in such cases.

And he hereby appoints Messrs. Leggett & Leggett, of Washington, D. C., his attorneys, with full powers of substitution and revocation to prosecute said —, to make alterations and amendments therein, to receive the letters patent, to sign my name to the drawing, and to transact all business in the Patent Office connected therewith.

T. R. BAILEY, JR.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the county of Niagara and the State of New York, have invented a new and improved hydrant fire-plug; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable

others skilled in the art to which my invention relates to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification:

This invention relates to improvements in the construction of fire plugs or hydrants.

In the drawing Fig. 1 represents a longitudinal central
915 section of a hydrant according to my invention; Fig. 2, a cross-section of the same through lines XX of Fig. 1.

My invention consists in the following parts and combinations, as hereinafter specified and claimed, wherein A represents the hydrant-tube from which water is discharged. B is the horizontal section which is connected with the water "main," and which may form the valve-chamber. C is a loose movable casing around the hydrant-tube. D is the cylinder-valve, having its seat at its lower end upon suitable elastic packing secured in a groove, as shown at *a*. E is a rod having a screw-thread on its upper end by which the valve is operated. F is a sleeve-nut engaged with the screw-nut on the rod E, lifting and lowering said rod as the nut is turned one way or another. This nut is turned by a wrench or crank or other suitable device on the head G. The sleeve-nut is screwed in the cap of the hydrant by a collar and packing under the hollow cylinder stuffing-box H. J is a yoke, which is attached to the rod E by a set-screw or its equivalent, and it is screwed in the tube A and prevented from turning as it moves up and down by projecting lugs, as shown in detail at Fig. 2.

It will be noticed that the arrangement is such that the rod and valve may be raised and lowered without being rotated, thus securing a uniform and perfect bearing of the valve on its seat, the packing *a* remaining undisturbed. Provision is made for the discharge of the waste water by an orifice, *f*, beneath the valve *d*, which orifice is opened and closed by a valve, *g*. A wing, *h*, is provided upon the top of this valve. As the cylinder-valve D descends the annular flange *i* on its inside, striking the wing *h*, raises the valve, as shown in the drawing, and allows any water which may remain in
916 the hydrant to escape down through the orifice *f* and aperture K, thus preventing any retention of water above the freezing level.

The tube A is secured to the horizontal section B by a ring-nut *m*, which contains recesses for packing rings around the value, as shown at *n*. Packing about the valve is also secured by another ring-nut, *o*, and also under the end of the tube A, as shown in the drawings.

P represents the discharge-pipe with a screw for the attachment of the hose, and a cap-piece for covering the pipe when the hydrant is not in use.

It will be observed that the casing C loosely rests upon the main B, or upon a branch projecting upward from the same. This casing extends upward, enveloping the main portion of the water-pipe A, at least that portion which is subterranean. Said casing extends upward and fits loosely about the plug or hydrant at the portion A'. Above the upper terminus of the casing C is provided the bead *a*

upon the hydrant proper. Sufficient space is left between the bead *a* and the upper terminus of the casing C to permit of sufficient up-and-down play of the said casing C for the purpose which will hereafter more fully appear. This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base.

The main function of the casing C is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug. This process of freezing causes the surrounding earth, by its expansion, to lift or upheave, and thus be liable to derange the hydrant or plug. This upheaval or movement is received by the casing C, which, by its capability of
917 sliding loosely up and down, will accommodate the upheaval of the earth above mentioned without any liability to derange the plug or hydrant. This is the chief function of the casing C, although it likewise serves the purpose of protection to the water-pipe A.

What I claim is—

1. In combination with a hydrant or fire-plug a detached and surrounding casing, C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbance of the hydrant or plug proper, substantially as shown.

2. In combination with a hydrant or fire-plug pipe A the supply-pipe B, and cylinder-valve and waste-valve, connected and operated substantially as herein shown and described.

3. The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown.

THOMAS R. BAILEY, JR.

Witnesses:
J. R. COMPTON.
E. WEST.

STATE OF NEW YORK, } ss:
County of Niagara, }

T. R. Bailey, the above-named petitioner, being duly sworn, deposes and says that he verily believes that by reason of an insufficient or defective specification his aforesaid letters patent are inoperative or invalid; that the said error has arisen from inadvertence, accident, or mistake, and without any fraudulent or deceptive
918 intention, to the best of his knowledge and belief; that he is the sole owner of said letters patent, and that he verily believes himself to be the first and original inventor of the improvement set forth and claimed in this amended specification.

T. R. BAILEY, JR.

Sworn to and subscribed before me this 4th day of February, A. D. 1876.

[L. S.] J. R. COMPTON,
Notary Public in and for Niagara Co., N. Y.

THE UNITED STATES PATENT OFFICE.

[Vignette.]

To all persons to whom these presents shall come, Greeting:

This is to certify that careful search has been made of the digest of this office and no assignment, agreement, license, power of attorney, or other instrument of writing is found of record under or relating to letters patent granted to T. R. Bailey, Jr., No. 75344, March 10, 1868, for "hydrants."

In testimony whereof I, Ellis Spear, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this fifteenth day of February, in the year of our Lord one thousand eight hundred and seventy-six, and of the Independence of the United States the one hundredth.

[L. S.] ELLIS SPEAR,
Acting Commissioner.

919 (167.) 1876. $\frac{8}{89}$.

Reissue. Durnall.

No. 6990.

Thomas R. Bailey, Jr., of Lockport, county of Niagara, State of New York.

Hydrants.

Rec'd Febr'y 17, 1876.
Petition, Febr'y 17, 1876.
Affidavit, " " "
Specification, Febr'y 17, 1876.
Drawing, " " "
Abstract of title, Febr'y 18, 1876.
Old patent, No. 75344, March 10, 1868.
Cert. dep.
1. Cash $30, Febr'y 17, 1876.
Examined, J. B. Durnall, M'ch 8, '76.
2. Issue Mar. 8, '76. Knight.
4. Patented M'ch 10, 1868.
Reissued M'ch 14, 1876.
Circular M'ch 9, 1876.
Leggett & Leggett, present.

1876.

Contents.

Application papers.

Title:

Improvement in hydrants.

Ex'd: E. L. L.
C. F.

(For specifications and drawing see pages VIII and IX, *supra.*) 102.

920 "EXHIBIT FILE-WRAPPER AND CONTENTS, RACE & MATHEWS 1858 PATENT."

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the letters patent granted W. Race and S. R. C. Mathews, January 26, 1858, number 19206, for improvement in hydrant.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 16th day of May, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[SEAL.] BENJ. BUTTERWORTH,
Commissioner.

Petition.

921 $30 cert. 2 drawings.

To the Commissioner of Patents:

The petition of Washburn Race and S. R. C. Mathews, of Seneca Falls, in the county of Seneca and State of New York, respectfully represents:

That your petitioners have invented a new and improved hydrant, which they verily believe has not been known or used prior to the invention thereof by your petitioners. They therefore pray that letters patent of the United States may be granted to them therefor, vesting in them and their legal representatives the exclusive right to the same, upon the terms and conditions expressed in the act of Congress in that case made and provided, they having paid thirty dollars into the Treasury and otherwise complied with the requirements of said act; and they do hereby authorize O. D. Munn, S. H. Wales, and A. E. Beach, of the firm of Munn & Co., or their ac-

credited agents, to act as their attorneys in presenting the application and in making all such alterations and amendments as may be required.

WASHBURN RACE.
S. R. C. MATHEWS.

922 *Oath.*

STATE OF NEW YORK, } ss:
County of Seneca, }

On this eighth day of October, 1857, before the subscriber, a justice of the peace in and for said county, personally appeared the within-named Washburn Race and S. R. C. Mathews, and made solemn oath that they verily believe themselves to be the original and first inventors of the within-described improved hydrant, and that they do not know or believe that the same was ever before known or used, and that they are citizens of the United States.

ABRAM FAILING,
Justice of the Peace.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and improved hydrant, and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Fig. 1 is a vertical central section of our improvement.

Fig. 2 is a horizontal section of do., taken in the line (*x*) (*y*) Fig. 1.

Fig. 3 is a detached view of the annular valve.

Fig. 4 is a detached side view of the device by which the valve-rod is operated.

Fig. 5 is a detached view of the wrench.

Similar letters of reference indicate corresponding parts in the several figures.

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923 Erase. See am't A. R's'd.

This invention consists, 1st, in a peculiar means or arrangement of parts for working the valve rod, whereby said rod may be operated without removing the cap of the hydrant.

The invention consists, 1st, in a novel construction and arrangement of valves whereby the waste-pipe or orifice is opened as the induction-pipe is closed, and *vice versa*, and the perfect operation of the valves ensured, both being operated by a single lever or wrench.

The invention consists, 2d, in a peculiar construction and arrangement of parts, as hereinafter shown, whereby the hydrant may be readily detached from its base and removed or withdrawn without the trouble and expense of excavating.

To enable those skilled in the art to fully understand and construct our invention we will proceed to describe it.

A represents the case of the hydrant, the upper part of which (*a*) may be of any appropriate and ornamental form, provided with one or more horizontal nozzles B. The lower part (*b*) of the case is smaller in diameter than the upper part, and is of cylindrical form; the part (*b*) is below the surface of the ground, and the part (*a*) above it.

The lower part (*c*) of the part (*b*) of the case is enlarged somewhat in diameter, and an annular valve, B′, is fitted therein. This valve is formed of a flat ring (*d*), grooved circumferentially in its exterior surface to receive a packing (*e*), which may be of leather or other suitable material. The ring *d* is provided with a cross-bar (*f*), having a hub or boss (*e′*) at its center, in which the lower part of a rod, C, is fitted, said rod having a shoulder (*g*) formed
924 on it, which serves as a bearing for the upper edge of the hub or boss, and a nut (*h*) is placed on the rod below the hub or boss, said nut fitting on a screw-thread; by turning the nut in the proper direction the valve B′ may be firmly secured on the rod. Through the ring (*d*) of the valve B a screw (*i*) passes, said screw passing through the ring at a point directly opposite an opening (*j*) in the part (*c*) of the case.

The lower end of the part (*c*) has a screw-thread formed on it, and is screwed into the upper end of a curved or bent pipe, D, which is fitted permanently in the ground, and communicates with the "main." The upper end of the pipe D is provided with a flanch (*k*) and a small spout or nozzle (*l*). The flanch (*k*) extends all around the pipe D, and it receives the lower end of a cylindrical jacket E, which is [fitted]* permanently fitted in the ground. An annular piece of packing (*m*) is interposed between the upper end of the pipe D and the lower end of the part (*c*) of the case.

*Erase. See am't A. R's'd

Within the lower part of the part (*c*) of the case a screw-thread is formed to receive an annular valve-seat, F, said seat being screwed into the lower end of (*c*).

G represents a valve which is formed of two parts (*n*) (*o*), the part (*n*) being of cup form and containing a nut (*p*) by which the valve G is secured to the lower end of the rod C, a screw-thread being on the lower end of the rod. The other part (*o*) of the valve is a cap, which is screwed down upon a packing (*q*), which, when said valve is closed, bears against the seat F, as plainly shown in Fig. 1. The valve G is allowed to turn freely on the rod C.

Around the outer side of the part (*c*) of the case A a groove
925 (*r*) is made, said groove being in the same plane with the opening (*j*) in the part (*c*), and the spout or nozzle (*l*) on the pipe D.

The lower end of the upper part (*a*) of the case A is provided with a flanch (*s*), which fits over a flanch (*t*) on the upper end of the jacket E.

In the upper end of the part (*a*) of the case A there is screwed a

cap, H. The cap H is screwed into a recess (*u*), in which packing (*v*) is placed, the above parts forming a stuffing-box.

To the upper end of the rod C a yoke, I, is attached, and a cam or eccentric, J, is fitted within the yoke. The cam J is placed upon a shaft, K, which has its bearings in a flanch (*a'*) on the upper part (*a*) of the case A. One end of the shaft K projects beyond the edge of the flanch and has a square formed on it to receive a wrench, L, shown in Fig. 5. The sides of the yoke I are slotted vertically, as shown at (*b'*), Fig. 4, the shaft K passing through said slots.

The yoke I is covered by a cap, M, the lower edge of which is provided with a flanch (*a''*), which is fitted on the flanch (*a'*) of the case and secured to it by screw-bolts.

The ring (*d*) of the annular valve (B') may be provided with lugs (*e''*), as shown in Fig. 3, said lugs fitting in grooves in the case in order to prevent the valve from turning casually.

The wrench L has a fork at each end, one fork fitting the square on the shaft K, and the other fork fitting the nut (*p*). The upper end of the cap H also has grooves or recesses made in it to receive one end of the wrench L for the purpose of turning the cap.

The operation is as follows: By applying the wrench L to the square on the shaft K, the cam or eccentric J may be turned without raising or moving the cap M, and the rod C may be raised and lowered thereby. When the rod C is raised the valve G bears against its seat, F, and the water from the "main" is prevented from passing into the case A of the hydrant; and when the valve G is closed the valve B' is above the opening (*j*), and, therefore, the water within the case A may pass out through the opening (*j*) into groove (*r*) and out at spout or nozzle (*l*). When the rod C is lowered the valve G opens and the annular valve B' passes over the opening (*j*), closing the same, while the water from the "main" passes up through the seat F, through the case A, and out through nozzle B. Thus it will be seen that when the water is admitted into the case the escape passage (*j*) is closed, and when the water is shut off the said passage (*j*) is opened. In case any of the parts require to be repaired the whole hydrant may be raised, the jacket remaining stationary, by merely unscrewing the lower part of (*c*) from the upper end of the pipe D. This is effected, of course, by turning the case A. By this means no excavating is necessary in order to repair the hydrant, as it may be removed and replaced without difficulty.

926

In order to adjust the cap when required, the cap M is removed, the yoke I unscrewed from the rod C, and the proper end of the wrench applied to it. In consequence of having the valve G constructed as shown, it is allowed to turn freely on the rod C and an even wear is ensured, so as to prevent leakage, and, in case the valve B' becomes loose by use, the screw (*i*) by being adjusted may be made to press the valve tighter over opening (*j*).

Erase. See am't, A. R's'd.

We do not claim broadly, for we are aware that hydrants have been constructed and their parts arranged in various ways, so that they could be removed for repairs without excavating, the parts being rendered capable of being withdrawn from the case; but we are not aware that an arrangement like ours has ever been used for effecting the purpose. Neither do we claim the casing of hydrants when the case and base or pipe D are in one piece and permanently attached to the pipe from [the]* "main," as that has been previously done; [but we claim,]*

927

* Insert.

* Insert.

1st. Operating or working the valve-rod C by means of the cam or eccentric J, placed within the yoke I and fitted on the shaft K, which passes through slots (*b*) in the yoke, the whole being arranged substantially as described.

2d. The annular valve B′ and the disk-valve G attached to the rod C and arranged relatively with each other, and the escape or leak opening (*j*) and seat F, as shown, whereby the escape or leak opening is opened as the induction-pipe D is closed, and *vice versa*.

3d. Providing the annular valve B′ with a set-screw (*i*) and packing (*e*), arranged as shown and described for the purpose of ensuring the perfect working of said valve.

Erase all the claims and insert. See am't A. R's'd.

4th. The valve G constructed of two parts (*n*) (*o*), arranged and attached to the rod C, as shown, whereby the valve is allowed to turn freely on the rod, thereby preventing uneven wear.

5th. Attaching the lower end of the case A to the induction-pipe D, by screwing the same therein and providing the upper end of the pipe D with a flanch (*k*) to receive the jacket E, as herein shown, whereby the case A may be readily detached from the pipe D and removed in case repairs are necessary, without the trouble and expense of excavating.

WASHBURN RACE.
S. R. C. MATHEWS.

Witnesses:
WHITING RACE.
W. S. DaLEE.

928 U. S. PATENT OFFICE, *Dec.* 31, 1857.

GENTLEMEN *Sir:* In the matter of your application for a patent for improv't in hydrants you are respectfully informed that, as at

present presented, a patent cannot be granted. Your first claim is for a device—a yoke eccentric—common in mechanics. See Scott Russel on the Steam-Engine, page 188, or any other elementary work of the kind; also Judge Crunch's decision in the case of Cochrane *vs.* Waterman.

The 2d claim appears to be patentable so far as it has been as yet investigated, if put in the regular form of a combination claim. Ed. I Baker's hydrant, pat. 8th April, 1856, is provided with an arrangement of piston and valve so nearly similar to this that it would probably be found its equivalent; but Baker has no waste-pipe like yours. This feature, however, is not new, as it occurs in many forms of hydrants; therefore, to make this claim admissible, it must be put as a combination one.

There is, or appears to be, nothing new in the 3d claim. Using set-screws and packing in a piston is common, particularly in steam-cylinders, nor is making a valve in two parts and attaching them thus to the piston-rod, allowing one of the parts to turn freely.

Your 4th claim — new; this device or its equivalent is frequently seen in hydrants, pumps, stock-cocks, etc.

Your 5th claim is so complicated it is difficult to make out how much of it is claimed. It is doubtful if any part of it separately be new; therefore, if the object be to claim any part separately it must be so stated, but if [it] be only wished to make a combination claim covering the arrangement of the several parts as one claim, then it should be set forth more distinctly than it now is.

929 Your specification and one drawing is returned, that you may, if you think proper, make these amendm'ts.

Respectfully, —— ——, *Com.*

Washburn Race, S. R. C. Matthews, care of Munn & Co., New York.

The specification of Washburn Race and S. R. C. Mathews for improved hydrant is hereby amended as follows:

* Erase. 1st. By striking out [the 1st clause]* of the recital of invention, commencing with the first and ending with the fifth line, on page 2; also by

* Erase. striking out the word [fitted],* between the words "is" and "permanently," in the fourth line on

* Insert. page 4; also by inserting the word [the]* between the words "from" and "main" in the fifteenth line of page 8.

2d. By adding the following words to the disclaimer, between the words "done" and "but," in the fourteenth line thereon:

Insert. Neither do we claim separately the arrangement of the valves B′ G.

Also by striking out [the latter part]* of the matter on page 7, commencing after the word "difficulty," in the eleventh line on said page. Erase.

3d. By striking out the whole of the five clauses of the claim, commencing with the fifteenth line on page 8, and substituting the following therefor: Erase.

1st. The annular valve B′ and the disk-valve G, attached to the rod C, in combination with the escape or leak opening (*j*) and seat F, the above parts being arranged to operate as and for the purpose set forth. Insert.

2d. The combination of the case A, induction-pipe D, provided with flanch (*k*) and the jacket E, when arranged as herein shown and described, to effect the desired end, to wit, the ready removal, when necessary, of the case and working parts of the hydrant for repairs. Insert.

930

New York, January 4, 1858.

MUNN & CO.,
Attorneys for Washburn [Race] & Mathews.

392. King. 116.

No. 19206.
W. Race and S. R. C. Mathews, of Seneca Falls, county of Seneca, State of New York.
Hydrant.
Rec'd Oct. 29, 1857.
Petition, Oct. 29, 1857.
Affidavit, " " "
Specification, Oct. 29, 1857.
2. Drawings, " " "
Model, Nov. 11, 1857.
Cert. dep. $30, Oct. 29, 1857.
Cash.
Examined—H. King, Jan. 12, 1858.
2. Issue—Shugert, Jan. 13, 1858.
3. Patented Jan. 26, 1858.
Recorded vol. 83, page 537.

H Munn & Co., New York.

Spec'f'n and 1 draw'g sent with letter, Dec. 31, 1857.
Improvement in hydrants.
Ex'd: C. F.
E. L. L.

Reissued July 18, 1871. No. 4475.

931 "EXHIBIT FILE-WRAPPER AND CONTENTS, REISSUE RACE & MATHEWS 1869 PATENT.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the reissue letters patent granted Nancy Race, administratrix of Washburn Race, deceased, and Samuel R. C. Mathews, said Washburn Race and Mathews, assignors to S. R. C. Mathews *et al.*, February 26, 1884, number 10452, improvement in hydrants.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 26th day of May, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

BENJ. BUTTERWORTH,
Commissioner.

932 To the Commissioner of Patents:

Your petitioners, Samuel R. C. Mathews, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania (formerly of Lockport, N. Y.), and Nancy Race, of the town of Volney, county of Oswego and State of New York, administratrix of the estate of Washburn Race, deceased, as by reference to the duly certified copy of letters of administration hereunto annexed will more fully appear, pray that they may me allowed to surrender the letters patent for an improvement in hydrants granted to S. R. C. Mathews and W. Race on November 16th, 1869, whereof Samuel R. C. Mathews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, on whose behalf and with whose assent this application is made, are now sole owners, by assignment, and that letters patent may be reissued to the said Samuel R. C. Mathews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood for the same invention, upon the annexed amended specification; and they hereby appoint Rudolph M. Hunter, of the city of Philadelphia, State of Pennsylvania, as their attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith. With this petition is filed an abstract of title duly certified, as required in such cases.

NANCY RACE,
Administratrix, etc., of Washburn Race, Deceased.
SAMUEL R. C. MATHEWS.

933 The undersigned, assignees of the entire interest in the above-mentioned letters patent, hereby assent to the accompanying application.

SAMUEL R. C. MATHEWS.
RICHARD WOOD.
EDWARD R. WOOD.
GEORGE WOOD.
J. H. JOHNSON,
Adm'r Randolph Wood, Dec'd.
WALTER WOOD.

To all whom it may concern:

Be it known that we, Washburn Race (deceased), of Lockport, county of Niagara, State of New York, represented by Nancy Race, administratrix, of the town of Volney, county of Oswego and State of New York, and Samuel R. C. Mathews, of the city and county of Philadelphia, State of Pennsylvania, formerly of Lockport, New York, have invented an improvement in hydrants, of which the following is a specification:

Our invention has reference to hydrants and consists in improvements upon letters patent granted to us January 28th, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and embedded in the ground, but more specifically in combining a case or jacket with a hydrant-stock, the said jacket being loosely fitted to said hydrant-stock and adapted to have end play to compensate for the heaving by frost, sliding both at top and bottom and keeping a dead-air space between said hydrant-stock and jacket; further, in so forming and connecting the loose case or jacket above specified that it extends above the surface of the ground
934 and conforms to the general outline of the hydrant itself, and may be driven back to place upon the elbow at bottom when the frost has expended its force.

The object of this invention is to provide a frost-jacket so fitted to the hydrant that it may have end play, by means of slip-joints both at top and bottom, to compensate for heaving by frost, and so fitted to the hydrant that when the stock is removed from the elbow at bottom for repairs no gravel, dirt, mud, etc., can find its way into said elbow to injure the valves, etc., since the jacket forms a practically close sliding joint with the flange on the elbow at the bottom, and extends to or above the ground at top.

By forming a sliding joint with the flange on the elbow there is no possibility for dirt and mud to find its way around the joint where the stock screws into the elbow and thereby fall in when the said stock is removed for repairs, as would be the case if the said sliding joint at bottom was not used.

Oct. 2, '83.

In the drawings—

Fig. 1 is a sectional elevation of our improved hydrant, and

Fig. 2 is a horizontal cross-section of same.

A indicates the hydrant proper, the part *a* being above ground and the stock *b* being below the same and enclosed within the casing or jacket B.

Oct. 2, '83.
Jan. 23, '83.

The loose case or jacket B, which surrounds the hydrant-stock, is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and made to slide upon the hydrant at the top of the hydrant-stock *b* and also at the bottom upon the hydrant-stock, or upon the elbow to which the stock is secured, and the end play is limited by the shoulders G G′, respectively, at top and bottom. This case or jacket B rests
935 upon the elbow C, and is centered by same through the agency of its flange, *h*, and when heaved by frost it may be driven back again and rest upon the said elbow without displacement.

Oct. 2, '83.

The casing or jacket does not fit the stock close along its body, but leaves a dead-air space, as shown.

The earth is filled in about the case or jacket B and elbow C, at bottom, while the hydrant-stock itself is simply enclosed within said jacket. The lower end of the case preferably slides into a flange, *h*, of the elbow connection C, and it may be centered, to prevent axial turning, by a sleeve or projection, *c*, which slides in groove D formed in the flange *h*.

Oct. 2, '83.

By this construction the stock of the hydrant and its valves may be removed for repairs, leaving the casing or jacket B in the ground, and, as the said jacket B forms a close sliding joint with the bottom of the hydrant or elbow, no dirt or gravel can find its way into the main or interior of the jacket.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant.

The heaving by frost is a constant source of trouble and expense in [other]* hydrants, by causing the elbows at the bottom connecting with the "main" to break, also throwing the hydrant itself out of position. [We aim to]* remedy this difficulty by giving the desired end play [and]*, at the same time, by extending the case above the surface enable it to be driven back to place without difficulty.

*Jan. 23, '83.

*Jan. 23, '83.

936

Another great advantage of our invention is that the hydrant—these hydrants—

Jan. 23, '83.

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can be set at various heights above sidewalks, accommodating them to the different gradings, without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

Having now described our invention, what I claim as the invention of the said Washburn Race and myself is—

1st. The detached case or jacket B so combined and arranged with a hydrant as to have end play or vertical motion to compensate for heaving by frost, the said case B forming a comparatively close sliding joint with the hydrant both at top and bottom, the upper part of same passing outside of the main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant and the lower part of said jacket resting upon the elbow at bottom and centered by a flange.

Insert B.

In testimony of which invention I hereunto set my hand.

NANCY RACE,
Administratrix, etc., of Washburn Race (Deceased).

Witnesses:
C. H. DAVID.
N. H. GILBERT.

937 STATE OF NEW YORK, } ss:
County of Oswego, }

The above-named petitioner, being duly sworn, deposes and says that she verily believes that the aforesaid letters patent are inoperative or invalid by reason of a defective specification, and that such defect consists in claiming more than they were entitled to, and that the error arose by inadvertence, without any fraudulent or deceptive intent; that Samuel R. C. Mathews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood are sole owners of said letters patent, and that this application is made on the behalf and with the consent of the said parties, and that she verily believes Washburn Race jointly with S. R. C. Mathews to be the first and original inventors of the improvement set forth and claimed in this amended specification, and does not believe that the same was ever before known or used.

NANCY RACE,
Administratrix, etc., of Washburn Race, Deceased.

Sworn to and subscribed before me this 17th day of May, 1882.
C. H. DAVID,
Notary Public, Oswego Co., N. Y.

STATE OF NEW YORK, } ss:
Oswego County Clerk's Office, }

I, Merrick Stowell, clerk of said county, and of the supreme and county courts therein, which are courts of record, do certify that C. H. David, whose name is subscribed to the jurat of the annexed instrument, was at the time of taking the same a notary
938 public, in and for said county, and duly qualified and authorized to take the same; and I further certify that I am well acquainted with his handwriting, and verily believe the signature to said jurat is genuine.

In witness whereof I have hereunto set my hand and affixed the seal of said county and courts, at the city of Oswego, this 28th day of October, 1882.

MERRICK STOWELL, *Clerk,*
By C. C. WENTWORTH, *Deputy.*

In testimony of which invention I hereunto set my hand.
SAMUEL R. C. MATHEWS.

Witnesses:
R. M. HUNTER.
R. S. CHILD, JR.

STATE OF PENNSYLVANIA, } ss:
County of Philadelphia, }

The above-named petitioner, being duly sworn, deposes and says that he verily believes that the aforesaid letters patent are inorperative or invalid by reason of a defective specification, and that such defect consists in claiming more than they were entitled to, and that the error arose by inadvertence, without any fraudulent or decep-

tive intent; that Samuel R. C. Mathews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood are sole owners of said letters patent, and that this application is made on the behalf and with the consent of the said parties, and that he verily believes himself jointly with W. R. Race to be the first and
939 original inventors of the improvement set forth and claimed in this amended specification, and does not believe that the same was ever before known or used.

SAMUEL R. C. MATHEWS.

Sworn to and subscribed before me this 19th day of May, 1882.
[L. S.] R. S. CHILD, Jr.,
Notary Public.

The People of the State of New York to Nancy Race, of Volney, N. Y., send greeting:

Whereas Washburn Race, as is alleged, lately died intestate, being at or immediately previous to his death an inhabitant of or having left assets which then were or have since come within the county of Oswego by means whereof the ordering and granting administration of all and singular the goods, chattels, and credits of which the said intestate died possessed, and also the auditing, allowing, and final discharging the account thereof, do belong unto our surrogate of the county of Oswego; and we, being desirous that the goods, chattels, and credits of the said intestate shall be well and faithfully administered, applied, and disposed of, do grant unto you, the said Nancy Race, full power, by these presents, to administer and faithfully dispose of all and singular the said goods, chattels, and credits; to ask, demand, recover, and receive the debts which unto the said intestate, whilst living and at the time of his death, did belong; and to pay the debts which the said intestate did owe as far
940 as such goods, chattels, and credits will thereto extend and the law requires, hereby requiring you to make or cause to be made a true and perfect inventory of all and singular the goods, chattels, and credits of the said intestate within a reasonable time, and to return a duplicate thereof to our surrogate of the county of Oswego within three months of the date of these presents; and if further personal property or assets of any kind not mentioned in any inventory that shall have been so made shall come to your possession or knowledge, to make or cause to be made, in like manner, a true and perfect inventory thereof within two months after discovery thereof

And we do by these presents depute, constitute, and appoint you, the said Nancy Race, administratrix of all and singular the goods, chattels, and credits which were of the said Washburn Race, deceased.

In testimony whereof we have caused the seal of the surrogate's court of our said county of Oswego to be hereunto affixed.

Witness Timothy W. Skinner, surrogate of our said county of

Oswego, at the village of Mexico, the sixteenth day of May, A. D. 1882.

[L. S.] WILLIS E. HEATON,
Clerk to the Surrogate's Court of Oswego County.

PHILADELPHIA, *Aug.* 31*st*, 1882.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application (reissue) of Samuel R. C. Mathews and W. Race for an improvement in hydrants, filed with this affidavit, filed 188–, serial numbered —, and in charge of examiner in room —.

941 Samuel R. C. Mathews, being duly sworn, doth depose and say that careful and diligent search has been made during the last three months, for the original letters patent which should form subject-matter for the present reissue application, said patent being dated Nov. 16, 1869, and numbered 96959, and believes that the same is lost beyond any hope of finding.

SAMUEL R. C. MATHEWS.

Sworn and subscribed to before me this sixth day of September, A. D. 1882.

[L. S.] JOHN W. STEWARD,
Notary Public.

PHILADELPHIA CITY AND COUNTY, *ss:*

I, W. Marshall Taylor, register for the probate of wills and granting letters of administration in and for the city and county of Philadelphia, in the Commonwealth of Pennsylvania, do hereby certify and make known that on the 5th day [of] May, in the year of our Lord one thousand eight hundred and seventy-six, letters of administration on the estate of Randolph Wood, deceased, were granted unto Israel H. Johnson, he having first given security well and truly to administer the same.

Given under my hand and seal of office this 5 day of October, 1882.

[L. S.] WILLIAM G. SHIELDS,
Dep'y Register.

942 UNITED STATES PATENT OFFICE.

[Vignette.]

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the digest of this office of all assignments, agreements, licenses, powers of attorney, and other instruments of writing found of record up to and including May 18, 1882, under or relating to letters patent granted to Washburn Race and S. R. C. Mathews, assignors to S. R. C. Mathews, November 16, 1869, No. 96959, hydrants.

In testimony whereof I, E. M. Marble, Commissioner of Patents,

have caused the seal of the Patent Office to be hereunto affixed this twenty-second day of May, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and sixth.

E. M. MARBLE,
Commissioner.

Nothing further found of record up to and including Sep. 9th, 1882.

SCHUYLER DURYEE,
Chief of Ass'g'm't Div.

Nothing further found of record up to and including Feb'y 4, '84.

SLAUGHTER.

Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Lib'r.	Page.
Washburn Race, S. R. C. Mathews.	S. R. C. Mathews, Lockport, N. Y.	Aug. 27, '69	Nov. 5, '69	Hydrants	Their right, the patent to issue to the assignees.	E 12	334
S. R. C. Mathews	Richard Wood, Edward R. Wood, George Wood, Randolph Wood, and Walter Wood, trading under the firm, style, and title of R. D. Wood & Co., of Philadelphia, Pa.	Aug. 24, '72	Nov. 7, '72	Hydrants, Nov. 16, '69, No. 96959, and another patent.	An undivided half of all his right in said patents; also the exclusive right and license of making and vending to others to be used hydrants made in accordance with the said several letters patent, said exclusive license to be held by said company for the unexpired terms of said several letters patent, unless previously abandoned or revoked, subject to conditions, see record.	A 16	421

944 PHILADELPHIA, *Oct.* 7, 1882.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for an improvement in hydrants (reissue), sent Sept. 13, 1882, serial numbered —, and in charge of examiner in room 104, the examiner asked for a seal to the notary public who swore Nancy Race. In reply to that I would say, 1st, that the statute does not say anything about a seal; it merely requires the oath to be administered by a notary; 2nd, that I refer the examiner to the New York State law, which does not require notaries to have a seal; and, 3d, that the rulings of the U. S. Patent Office have been such that the oath without a seal, when made in New York, has always been accepted, as it should be and must be.

Amend this case by inserting the following claim:

"The detached case or jacket B, so combined and arranged with a hydrant as to have end play or vertical motion to compensate for heaving by frost, the said case B forming a
A. comparatively close sliding joint with the hydrant, both at top
See B. and bottom, the upper part of same passing outside of the main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant, substantially as set forth."

Very truly, R. M. HUNTER.

This case has not rec'd any serial No. or date of filing.

945 IN THE U. S. PATENT OFFICE.

In the Matter of Application (reissue) of MATHEWS & RACE (rec'd at Patent Office Sept. 14th, 1882) for an imp't in hydrants.

PHILADELPHIA, *Oct. 10th*, 1882.

To the Commissioner of Patents.

SIR: I herewith return you the specification in the above case. As stated in my letter of Saturday last, the United States statute simply requires the oath to be made before a notary public, and does not say anything about the seal; and the law of the State of New York does not require a notary to have a seal; and, in view of these facts, and also that the Patent Office has accepted such before, I must insist upon its acceptance. The Patent Office has no right to refuse to consider the application or to file the same, as all the requirements according to law have been complied with.

Very respectfully, your obedient servant,

R. M. HUNTER, *Attorney.*

Address: 901 Walnut St., Philad'a, Pa.

Papers again returned by order of act'g Com., Oct. 11, '82.

946 (Copied.)

Room No. 104.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Nov.* 3, 1882.

Messrs. Mathews & Race, care Mr. R. M. Hunter, 901 Walnut St., Phil'a, Pa.:

Hydrant, filed Oct. 31, 1882, No. 75539.

The statement required by rule 86 does not appear in the file. The case cannot receive action on its merits until the rule in question has been complied with.

J. E. M. BOWEN,
Examiner Div. 9.

PHILADELPHIA, *Nov.* 8, 1882.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for reissue for an improvement in hydrants, filed Oct., 31, 1882, serial numbered 75539, and in charge of examiner in room 104.

In answer to the examiner's last action I would say that in this case rule 86 cannot very well be complied with, because:

1st. Applicants are claiming less than claimed in the original patent.

2nd. That the error was on the part of the Patent Office, which granted too broad a claim to stand.

3rd. That applicants made no error.

4th. This is the patent which the Supreme Court said should be limited to what is now claimed. (See S. C. decision in case Mathews *vs.* Boston Machine Co. *et al.*, recently reported.)

947 5th. One of the inventors is dead and cannot explain how any error arose.

6th. As the error lay in the office granting more than they should there was no fraudulent intentions on the part of applicants.

This is a case in which rule 86 does not and could not apply.

Very truly, R. M. HUNTER.

(Copied.)

Room No. 104.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Nov.* 14, 1882.

Messrs. Mathews and Race, care Mr. R. M. Hunter, 901 Walnut St., Phil'a, Pa.:

Hydrant, filed Oct. 31, 1882, No. 75539, reissue.

The statement required should be filed. It should be made by the applicant, whether assignee or inventor or administratrix, and should give the particulars required by the rule.

J. E. M. BOWEN,
Examiner Div. 9.

PHILADELPHIA, *Nov.* 15, 1882.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for reissue for an improvement in hydrants, filed Oct. 31st, 1882, serial numbered 75539, and in charge of examiner in room 104.

I hereby appeal to you in person from the decision of the principal examiner in the above specified application, in which he insists upon the supplemental oath referred to in rule 86.

948 My reasons of appeal are as follows: When the application for reissue was made the oath set forth wherein the defect consisted, and I consider from the nature of the defect that the statements therein contained under oath should be sufficient.

1st. Because rule 86 was designed as a guard against those who were endeavoring to cover more than they should and take advantage of others, and was not made to prevent a patentee from surrendering his patent and reissuing it with narrower and more limited claims as in this case.

2nd. That in the recent decision by the Supreme Court in the case of Mathews *et al. vs.* Boston Machine Co. it was decided that this patent was invalid, because the examiners had granted claims too broad, and practically set out what applicants were entitled to, and which matter is embodied in the present claims.

3rd. That the necessity for reissue was caused wholly by the examiner in the Patent Office, and had nothing whatever to do with the applicants, and the mistake being made by the Patent Office, no obstacle should now be put in the way of issuing a valid reissue, particularly as the patent is almost run out. Applicants have, by this mistake or error on the part of the examiner then in charge, lost 14 years' royalties or profits, and been put to the expense of prosecuting an expensive lawsuit, and it is but justice that the case should be speedily granted.

4th. That one of the applicants (Race) is dead and the other (Mathews) is traveling, and I do not know where he is, and may not see him for some time, and cannot therefore get any affidavits without great delay.

5th. That the applicants cannot swear to anything stronger
949 than they have already sworn, and the affidavit incorporated with the oath should be amply sufficient in this case.

It is impossible for applicants to swear whether the examiner then in charge allowed that claim without fraud or deceptive intent as called for in the rule.

6th. We have complied with the rule as far [as] it is practicable.

A speedy action is most respectfully requested.

Very truly, R. M. HUNTER.

Applicants have made oath that the patent is invalid by reason of a certain error, and that the same arose by inadvertence, without any fraudulent or deceptive intent.

Rule 86 provides that the applicant shall set forth the circumstances under or through which the error arose in order that the

Commissioner may adjudge, considering all the circumstances whether the same occurred without fraudulent or deceptive intent; and also as to whether the patent is in fact inoperative or invalid for any reason. The Supreme Court of the U. S. has decided in a number of cases that the granting of a reissue patent closes all inquiry into the existence of inadvertency, accident, or mistake on the ground that the proofs have been regularly made and were satisfactory to the Commissioner, and it was held that no other tribunal is at liberty to re-examine or controvert the sufficiency of such proofs. (Conklin *vs.* Stafford, 5 O. G., 236.)

The decision of the examiner is affirmed.

Dec. 4, 1882.

V. D. STOCKBRIDGE,
Acting Commissioner.

950 (Copy.)

Interlocutory Appeal.

Room No. 4.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *November 21st*, 1882.

In the Matter of the Application of MATHEWS and RACE — Hydrants.

You are informed that the hearing on the above appeal is fixed for Friday, December 1st, 1882, at 10 o'clock a. m.

Respectfully,
(Signed) C. J. KINTNER,
Chief Clerk for Commissioner.

Mathews and Race, care R. M. Hunter, 901 Walnut St., Phil'a, Pa.

Examiner's Statement.

IN THE U. S. PATENT OFFICE.

In the Matter of the Application of RACE and MATHEWS for reissue of patent No. 96959, dated Nov. 16, 1869, said application having been filed Oct. 31, '82. No. 75539.

Before the honorable the examiner-in-chief.

The applicants decline to comply with the requirements of office rule 86, and appeal from the examiner's action insisting that they shall file the statement which the rule provides for.

The rule was made for all applicants for reissue, and does not in terms except any one.

951 It provides in its first paragraph for just such cases as the present, where the purpose of the application is to restrict the patent to what the applicants are justly entitled.

The rule requires the applicants to distinctly point out the matter which was improperly claimed originally. Whether the error in this

case arose from the examiner's blunder or from the applicants' cupidity is neither here nor there.

It is as likely that the applicants' loss of 14 years' royalties and profits is due to the latter as to the former.

The examiner understands that the object of the statement in question is to provide the record with the reasons in full for the office's action in allowing the reissued patent.

Respectfully submitted,

J. E. M. BOWEN,
Examiner's Div. 9.

November 25, '82.

(Copy.)

Interlocutory Appeal.

Room No. 4.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *December* 5, 1882.

In the Matter of the Application [of] MATHEWS and RACE — Hydrants.

You are informed that the Commissioner, in his decision, says: * * * Rule 86 provides that the applicant shall set forth the circumstances under or through which the error arose, in order that the Commissioner may adjudge, considering all the circum-
952 stances, whether the same occurred without fraudulent or deceptive intent; and also as to whether the patent is in fact inoperative or invalid for any reason. * * *

"The decision of the examiner is affirmed."

Respectfully,
(Signed) C. J. KINTNER,
Chief Clerk for Commissioner.

Mathews & Race, care Rudolph M. Hunter, 901 Walnut St., Philadelphia, Pa.

PHILADELPHIA, —— —, 188–.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews and Race for an improvement in hydrants (reissue), original patent No. 96959, filed Oct. 31st, 1882, serial numbered 75539, and in charge of examiner in room No. 104.

STATE OF NEW YORK, } *ss:*
County of Oswego, }

Nancy Race, administratrix of Washburn Race, deceased, being duly sworn according to law, deposes and says that she is administratrix of Washburn Race, deceased, one of the joint inventors in the above-entitled patent and an applicant for the reissue of the same.

Deponent further says, upon information and belief, that the reissue now sought is necessary, for the reason that the said original patent claimed as the invention of Samuel R. C. Mathews and Washburn Race [is] a hydrant provided with a frost-jacket adapted and arranged so as to project above the surface of the ground
953 and to have vertical end play, said claim being broader than applicants' invention, and anticipated by hydrants in use at the time thereof; and, further, deponent says, upon information and belief, that the said invalidity in said claim arose without any fraudulent or deceptive intent on the part of said patentees, but from their inadvertence and mistake, they having at all times prior to the interpretation of said claim by the United States Supreme Court considered said claim to be so qualified by the accompanying specification as to have the meaning of the claim now prayed for in this application for a reissue.

NANCY RACE.

Sworn to and subscribed before me, a notary public in and for the county of Oswego and State of New York, this 14th day of December, 1882.

[L. S.] AMOS YOUMANS,
Notary Public.

PHILADELPHIA, —— —, 188–.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews and Race for an improvement in hydrants (reissue), original patent No. 96959, filed Oct. 31st, 1882, serial numbered 75539, and in charge of examiner in room No. 104.

STATE OF PENNSYLVANIA, } *ss:*
County of Philadelphia, }

Samuel R. C. Mathews, being duly sworn according to law, deposes and says that he is one of the joint inventors in the above-entitled patent and an applicant for the reissue of the same; and, further, he says that the reissue now sought is necessary for the rea-
954 son that the said original patent claimed as the invention of deponent and Washburn Race [is] a hydrant provided with a frost-jacket adapted and arranged so as to project above the surface of the ground and to have vertical end play, said claim being broader than applicants' invention, and anticipated by hydrants in use at the time thereof; and, further, he says that the said invalidity in said claim arose without any fraudulent or deceptive intent on the part of said patentees, but from their inadvertence and mistake, they having at all times prior to the interpretation of said claim by the Supreme Court of the United States considered said claim to be so qualified by the accompanying specification as to have the meaning and scope of the claims now prayed for in this application for a reissue.

[L. S.] SAMUEL R. C. MATHEWS.

Affirmed to and subscribed before me this 18th day of December, 1882.

[L. S.] ROBERT J. OWEN,
Notary Public.

(Copied.)

Room No. 104.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Jan.* 5, 1883.

Nancy Race and S. R. C. Mathews, care Mr. Rudolph M. Hunter, 901 Walnut St., Phila., Pa.

Hydrants, filed Oct. 31, '82, reissue No. 75539.

955 The paragraph at the top of page 2 ending with line 17 embodies new matter, as it was nowheres intimated in the patent for which reissue is asked that the invention consisted in connecting the case with the hydrant by slip-joints at the top and bottom.

The construction described at the top of page 3 is an alternative one, and it is also objected to because based upon new matter.

The sentence beginning with "the casing," line 11, page 3, and ending with "shown," line 14, page 3, is also new matter; likewise the sentence beginning "by this," line 22, page 3, and ending line 2, page 4.

To relieve the paragraph preceding the claims of objectionable matter in the nature of advertisement the word "other," line 16, page 4, should be erased; "while we" changed to "we aim to," line 20; "we" changed to "and," line 22, and "these" substituted for "another great advantage of our invention is that the," lines 25 and 26.

The lettering in the description does not agree with the lettering on the drawing.

The claims are held to cover an invention different from that set forth in the patent, and they are therefore objected to on the ground that they are based upon new matter. See Mathews *et al. vs.* The Boston Machine Co. *et al.*, 21 O. G., page 1281, and Miller *vs.* Bridgport Brass Co., referred to therein. Under these decisions it is also objected that the patentees have lost their right to reissue by reason of the undue delay in filing their application.

Furthermore, the claims are met by patents to—Bailey, 75344, M'ch 10, 1868; Coffin, 80143, July 21, 1868, and Regester, 38841, June 9, 1863, hydrants and plugs.

J. E. M. BOWEN,
Examiner Div. 9.

956 PHILADELPHIA, *Jan.* 19*th*, 1883.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Nancy Race and R. S. C. Mathews for an improvement in hydrants, filed Oct. 31st, 1882, serial number 75539, and in charge of examiner in room 104.

The examiner's objection to the matter at top of page 2 is not well taken in this case, for an applicant may in a reissue explain more fully and at large the objects or necessities of his invention, provided he does not overstep the original invention. Now, if the examiner has carefully read the original patent he must be fully aware that it describes the case B as adapted to be driven down to its place if upheaved from any cause. See line 22 of printed specification, the words "loose case;" also line 25, the words "may be driven back;" also lines 33 to 35, in which the end play is described as "several inches, more or less, between shoulders *g g*;" also see from line 37 to end of paragraph, in which the slip-joint is described at the bottom. Besides, the examiner has the original model filed, which, as well as the drawings, show this end play both at top and bottom, and every hydrant now in use built under this patent shows this feature, and they can be numbered by the tens of thousands.

The examiner must not go [to] the wrong extreme and object to the admission of fair description, and he must be aware that in this case in particular I would under no circumstances want to insert the smallest thing which could hurt the reissue as a patent. The invention has been limited and not enlarged, and the decisions of the Supreme Court relative to reissues has only been directed
957 against invalid enlargements, and never against limitations.

Any applicant may reissue his invention and alter his specifications in any manner he pleases, provided he stays within the invention shown or described in his original model or application, and as it is a well-established law that an inventor may use his invention for anything to which it can be put, and there is no objection to such use being set forth even in a reissue.

Applicants' present statements and claims are far more limited than the original.

On line 1, page 3, erase "or just."

The examiner is wrong in objecting to the matter on page 3, lines 11 to 14, as the whole object of the invention is to provide this dead-air space or enclosure between the hydrant stock and jacket or case. It is clearly shown in the drawings and model, and it is most objectionable practice to object to a description of a fact so clearly shown in the original case There is not a single decision to warrant this objection on the part of the examiner.

The same may be said of the statement on bottom of page 3, ending on page 4. I must insist that the examiner cannot refuse the admission into a reissue application of simple matter which only describes simple advantages of the construction set out in the original patent. These facts are true, and, being facts, applicants have a perfect right to insert them if they so desire. So far as I can see, whether they are in or out is of little importance, as the invention is the same.

On page 4, line 16, erase "other;" also, line 20, erase "while we" and insert "we aim to;" also, line 22, erase "we" and insert "and;" also, erase line 25 and the words "tion is that the hydrant," line 26, and insert "these hydrants."

958 The claims do not cover new matter, and I cannot see upon what ground the examiner should make such a statement.

The first claim is the same as the original patent, with the limitation that the end play of the jacket or case is obtained by the "slip-joints at top and bottom," and also by the "centering at the bottom by a flange."

That the first clause of the limitation is fully shown and set out in the original patent is a self-evident fact, and is as clear as A B C, and so is the second limitation; for instance, see drawing and line 37, original patent, to end of paragraph.

The second claim is the same as the original claim, with the broad statement of "end play" changed to end play limited by the jacket having slip-joints at both top and bottom, as shown.

Now, there is not one iota of objectionable matter inserted in this reissue application.

Every change which has been made was made as a limitation, and there is not a decision on record which prevents the reissuing of a patent to limit its scope. I do not doubt but that this is a thing which does not often come under the examiner's notice *often*, if it ever happened before. On the other hand, when a claim is described as too broad, an invention may at any time reissue to limit the scope of his patent, and that is just what applicants are doing. It is the equivalent of a disclaimer, and had all of these 3 claims been originally granted, applicants would simply have disclaimed the old or original. In a case like this we are at liberty to come in on the last or 16th year and obtain our reissue. The examiner is mistaken in his interpretation of the supreme court

959 decision in this case. It is clearly understood by all parties concerned therein that the only reasons why this patent failed to stand was on account of the New York hydrant, which showed a hydrant-case with a slip-joint at top and open at bottom, as shown in the attached print, as the end play of the jacket was not limited in the original patent, while in this application it is to a close joint at both top and bottom, as originally designed and shown both in drawings and model, and in every full-sized hydrant applicants constructed.

The other patent referred to in that decision fell from being improperly reissued, but the decision relating to that patent had nothing whatever to do with this. I would not have one word in this case which would not stand the test of the Supreme Court, and with this understanding I say that there is not one word of new matter inserted, everything being limited to the specification or drawing and model, and to amend in accordance with that we have a perfect right, and no objection should be urged against it.

Now, in regard to the references:

Coffin and Register have nothing that even relates to these claims and need not be considered, there not being even matter which would admit of an argument against them.

Now, so far as Bailey is concerned, the examiner will see that this patent was cited by official letter, Dec. 17th, 1868, on the original application, and the facts were then brought out. Bailey was

a workman who came to Mathews' shop when he was constructing his hydrants, and while Mathews was experimenting Bailey went to work and applied for a patent on another construction of valves and stock, but thinking the Mathews & Race jacket a good thing put it in his drawings, but never dared to claim it.

960 When applicants insisted on the claim being granted to them Bailey had his option to file a reissue application making claim to this jacket, which, of course, he never did, not being the inventor. He, therefore, lost all right to even make a claim to it, and the office could not at this time declare an interference or allow Bailey to make any claim to it; and, further, the Bailey patent cannot now and this application be equitably considered at all. And in conclusion I must insist upon the granting of the new claims as applicants' rights.

I trust that there will be no delay in acting on this case, as the life of the patent is fast drawing to a close, the delay on my part being due to my waiting for certain papers from the Patent Office, of which I ordered copies.

The examiner must not judge a case of limitation like this one by his ideas of a case of enlargement of claims, as they are entirely different in their effect and require different treatment.

R. M. HUNTER.

(Here follows diagram marked page 961.)

962 & 963 (Copied.)

Room No. 104.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Feb.* 20, 1883.

Nancy Race and S. R. C. Mathews, care R. M. Hunter, 901 Walnut St., Phila., Pa.:

Reissue No. 75539, hydrants, filed Oct. 31, 1882.

The last office action, except in the particulars complied with by applicants, is repeated subject to appeal.

J. E. M. BOWEN,
Examiner Div. 9.

PHILADELPHIA, *March* 5, 1883.

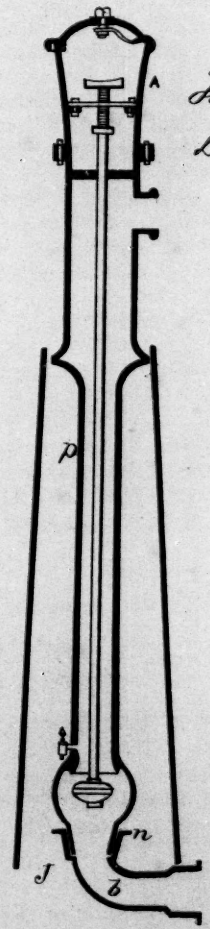
Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race (reissue) for an improvement in hydrants, filed Oct. 31, 1882, serial numbered 75539, and in charge of examiner in room 104.

Interlocutory Appeal.

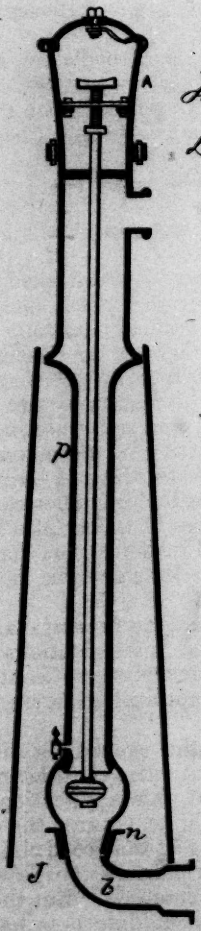
I hereby appeal to you in person from the decision of the principal examiner given in the above case on Feb'y 20, 1883, in which he refused to admit certain matter and claims, on the ground that it was new matter.

NEW YORK HYDRANT.



No. 4944.
Flower et al } p 961
v
Detroit et al }

NEW YORK HYDRANT.



No. 494.
Hower et al
v
Detroit et al
} p 965

My reasons for appeal are as follows: The original model filed and drawings show a hydrant in which the outer case or jacket, commonly known as the frost-jacket, was made to slide vertically, so that when it was upheaved by frost it could be driven back again to its place. In addition thereto it was clearly shown that
964 the said case or jacket formed a dead-air space about the stock of the hydrant; and it was also shown clearly that the said jacket or case was provided with a sliding joint at both top and bottom, and it is self-evident that if the case was pushed up it must slide both at top and bottom. Now, the original patent claimed this case having the sliding joint at the top, and this was the only claim to the patent; yet it was clear that applicants are fully entitled to the claims presented in this application.

They believed themselves to be entitled to the broad claim granted them, and when their patent was infringed suit was brought against the infringers. In this suit the Supreme Court held that a certain New York hydrant (see cut) anticipated their only claim, because it

(Here follows diagram marked p. 965.)

was too broad. It is needless for me to say that their loss was heavy.

They then had recourse to a reissue, in which they asked to surrender their broad claim and be allowed limited ones. These limited claims put into combination the additional elements of the sliding joint at the bottom also, and the case being steadied by a flange on the elbow at the bottom of the hydrant. When applying for the original patent it was not deemed necessary to put in any limiting clauses to the specification; hence the upper sliding joint and case were alone fully set forth. In putting in the present limited claims applicants have also limited the wording of their specification as was proper, and these limitations the examiner calls new matter (see top of page 3; also page 3, lines 11 to 14; also line 22, page 3, to line 2, page 4), and on this ground he holds that the claims cover different inventions than that originally shown in the model and original application.

966 & 967 This I deny, on the ground that the present claims are nothing more than very limited interpretations of the original invention, and as there was but one claim applicants could not enter a disclaimer, and the present application is simply designed to take the place of such disclaimer.

Since the late decisions against reissues the examiners discriminate too strongly against all applications, but when considering such a case as this it should be self-evident that this application is entirely clear of all imputation of endeavoring to enlarge the claims. The mistake originally arose in the granting of the broad claim, and it may be properly said that the examiner then in charge was not to blame, as the New York hydrant is not patented. But the error has arisen, and all applicants desire at this late date is to have the mistake corrected. Applicants returned their original patent and applied for a reissue immediately upon the decision of the Supreme

Court being given, and in every way are complying with the recent rulings.

The second point which arises is this: Of the three references cited by the examiner, Bailey alone has any reference to the case, and Bailey's case or jacket is identical with applicants', for the simple reason that Bailey was a workman and saw the Mathews & Race jacket made and applied to the hydrant, and while the latter were experimenting further Bailey took out his patent, and thinking the jacket good showed it in his application, but never attempted to make any claim thereto. Now, this patent was cited to the original application, and after the proper steps were taken it was shown that Bailey was not the inventor *to* this jacket with the slip-joints as shown, and the patent was granted to Mathews & Race. I
968 hold, therefore, that it is out of place for the present examiner to insist upon the Bailey patent as a reference to the reissue. Mathews & Race, being once shown as the prior inventors over Bailey, must always stand as the prior inventors, so far as the jurisdiction of the Patent Office is concerned.

Therefore, in this appeal, I ask that the examiner's objections to the present claims and the matter he denominates new matter be overruled; and, secondly, that he shall be denied the right to set up the Bailey patent as an anticipation and put applicants to the delay and expense of a duplicate interference with said patent.

I shall not appear in person, and ask that the decision be given upon the foregoing, and that as speedily as possible, as the life of the patent is fast drawing to a close, and the case has already been greatly delayed from numerous causes.

Very truly,

R. M. HUNTER,
Att'y for Mathews & Race.

(Copied.)

Room No. 104.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *M'ch 17th*, 1883.

Messrs. Race & Mathews, care Mr. R. M. Hunter, 901 Walnut St., Phila., Pa.:

Hydrant, filed Oct. 31, 1882, No. 75539, reissue.

The appeal in this case should have been taken to the board of examiners-in-chief and not to the Commissioner, as the de-
969 cision appealed from involves the merits of the case, and is not a decision upon a mere formal or interlocutory question.

Attention is respectfully called to office rule 128.

J. E. M. BOWEN,
Examiner Div. 9.

PHILADELPHIA, *Sept. 29th*, 1883.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for an improvement in hydrants, filed Oct. 31st, 1882, serial numbered 75539, and in charge of examiner in room 104.

Insert the following amendment in the above application:

In submitting this amendment to the examiner I would say that I have endeavored to comply with all of the requirements of the examiners in-chief, but have made some alterations in wording, which, it seems to me, gives applicants a more definite citation of their invention, and it is of paramount importance that the claims be so worded as to cover applicants' true invention—not the small, immaterial details, but the principle of the invention; and it is needless for me to say that applicants are very cautious and careful in not asking for anything so broad as might by any possible chance be unfavorably received by the U. S. courts.

Erase the paragraph on page 2, ending with line 17.

Line 1 of page 3, erase last word, "above."

Also erase all matter from "the casing," line 11, to "shown," line 14.

Also all matter from "by this," line 22, to end of line 2, page 4.

970 This removes all the matter objected to as new matter.

Erase the present claims and insert in lieu thereof:

"1st. The detached case or jacket B, combined with a hydrant, to have end play or vertical motion to compensate for heaving by frost, the said case B forming a comparatively close sliding joint with the hydrant, both at top and bottom, the upper part of same passing outside of the main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant.

"2. The detached case or jacket B, combined and arranged with a hydrant, to have end play or vertical motion to compensate for heaving by frost, the said case B closely surrounding the hydrant at the bottom and supported by the main
B elbow, and the upper part of same passing outside of the main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant, substantially as set forth.

"3rd. As an improvement on the detached case or jacket surrounding the hydrant-stock, shown and described in the former patent of Race & Mathews, dated January 26th, 1858, No. 19206, the case B forming a comparatively close sliding joint, both at top and bottom, and made shorter than that portion of the hydrant-stock upon which it is to have end play, and so that such case shall have a range for vertical motion upon said hydrant-stock, substantially as and for the purpose specified."

Approved as being substantially in compliance with decision of the board.

February 4, 1884.

R. L. B. CLARKE,
Per Board Appeals.

971 The difference between claims 1 and 2, aside from slight difference of words, lies in the fact that in claim 1 the citation that the "jacket or case is supported by the elbow" is omitted, and very properly, for if the jacket or case is closed at both top and bottom it is limited to within anything brought out in the late extensive suits, and the moment frost appears this jacket or case is no longer supported by said elbow, so that I feel applicants might with good, valid reason make this difference.

Claim 2 is the same as suggested by the examiners-in-chief, as is also claim 3, with the exception of the selection of words to define the sliding of the case on the stock; but the general meaning is the same, and is limited by the addition of the close joints at top and bottom, as I consider it too broad without this limitation.

Of course the suggestions in the opinion of the examiners-in-chief were intended to be taken as suggestions, so far as words are concerned, while of course the meaning is to be adhered to; hence, the slight changes in phrases I have made to their suggestion I presume will be found acceptable to the examiner, and the case at once allowed.

R. M. HUNTER, *Att'y.*

972 (Copied.)

Room No. 22.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Nov.* 10, 1883.

Nancy Race, administratrix, care Mr. Randolph M. Hunter, 901 Walnut St., Philadelphia, Pa.:

Hydrants, No. 75539, reissue, filed Oct. 31, 1882.

In this case the applicant has presented an amendment which, it is stated, while not conforming in all particulars to the decision of the examiners-in-chief of July 9, '83, wherein the action of the examiner in rejecting the application was affirmed, yet embodies substantially what the applicant considers the board intended to allow him. Under the practice, an amendment of this kind cannot be entertained by the examiner until it has received the approval of the examiners-in-chief. The examiner therefore declines to take further action in this matter. Attention is called to the decision of the Commissioner in *Ex Parte* Timken, 24 O. G., 1089. Under this decision the applicant's reissue cannot be allowed even though he conform to the suggestions of the board, because his application for reissue was not filed until after the patent sought to be reissued had run more than two years.

J. E. M. BOWEN,
Examiner Div. 9.

PHILADELPHIA, *November* 13, 1883.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for an improvement in hydrants (reissue), filed Oct. 31st, 1882, serial numbered 75539, and in charge of the examiner in room 22.

973 The examiner's objection to considering this case on the ground of the lapse of two years after the original patent was issued, and upon the decision of the Commissioner in Timkin's *ex parte* case cited, is erroneous, for the present application for a reissue is in all effects the entering of a disclaimer, and that would have been done had applicants more than one claim. The rule of two years does not apply to a reduction of the scope of the patent by reissue, but only to an enlargement, and does not in any way touch the present case.

Again, the defect in the original patent was the fault of the Patent Office alone, and that defect was not discovered until the Supreme Court found it out, and then applicants immediately made application to correct the defect, and the examiners-in-chief referred to this sufficiency in diligence under the circumstance.

Applicants could not do more than they did, and an objection on the ground of more than two years elapsing in a case like this is not only unreasonable but inequitable and contrary to the plainest reasoning of the law.

Again, the Supreme Court never set two years as a specific time; it merely thought two years was ample time, and if more time elapsed than two years the applicant should show cause for the delay, and in one decision refers to poverty as a sufficient cause. I therefore consider that Commissioner Marble's decision in Timkin's — was erroneous in its severity (on this point).

Now, the examiners-in-chief having granted that applicants were entitled to a reissue and have used due diligence, I request that the claims I have presented in last amendment be entertained by

974 and approved by them. They can see at a glance the difference between them and the claims they suggested.

Please let this be attended to at once and oblige,

Yours very truly,

R. M. HUNTER, *Att'y.*

(Copied.)

Room No. 22.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Nov.* 30, 1883.

Nancy Race, administratrix, care Rudolph M. Hunter, 901 Walnut St., Philadelphia, Penn.:

Hydrant, No. 75539, filed Oct. 31st, 1882.

The question as to the applicants' right to reissue under the decision referred to in the previous office letter must be settled before the merits can be further considered.

This is in response to the applicants' communication received the 14th instant.

J. E. M. BOWEN,
Examiner Div. 9

PHILADELPHIA, *December* 1*st*, 1883.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews and Race for an improvement in hydrants, filed October 31st, 1882, serial numbered 75539, and in charge of examiner in room 104.

In reply to the action of the examiner, dated Nov. 30th, 1883, I must say that I am at a loss to understand what he means.
975 The decision of the Supreme Court the examiner referred to in his former letter had reference to the application for reissue, being filed within two years after grant of original patent, and has no pertinency to the question here involved.

Applicants' present application is the equivalent to entering a disclaimer, and is not affected by that or any other decision of the kind, as they all relate to applications in which it is sought to enlarge the claims, not to limit them.

A man may at any time surrender his patent and take more limited claims.

Again, this question of diligence was brought up before the examiners-in-chief, who said:

"But within a very short time after this decision this application was made—Sept. 14th, 1882. There can be no question of diligence or forfeiture or abandonment in this case, and the only matters to be considered relate to new matter in the specification and form of claim."

And this having been decided by a higher tribunal, the question is out of the jurisdiction of the primary examiner. He is to be governed by what the examiners-in-chief have decided, and they unquestionably stated that applicants had a right to the reissue, and they were fully aware of the decision referred to by the examiner.

If such actions as these are to go on much longer the patent will expire while some immaterial point is being discussed.

I must emphatically object to this line of actions, and require that the case be treated as I have requested in my former letter. This case was filed more than a year ago, and it is a shame that the office has been delaying proper actions so long. Such an action as
976 that last given does nothing but delay proper actions, as it is indefinite and meaningless and refers to a matter out of the examiner's jurisdiction.

In justice to my clients I must demand a proper action to be taken in this case at once, as under the rules, this being for a reissue, it takes precedence over all original applications; and, secondly, equity requires that it be treated speedily and with no more delays. The present actions of the office are in violation with all rules and decisions of the Commissioner, and I respectfully request that the question now brought up by the examiner be withdrawn.

Very truly, R. M. HUNTER.

(Copied.)

Room No. 22.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 6, 1883.

Nancy Race, administratrix, care Mr. Rudolph M. Hunter, 901 Walnut St., Phila., Pa.:

Hydrants, No. 75539, reissue, filed Oct. 31, '82.

The action of the office of Nov. 10th was not made for the purpose of delay, as alleged by the applicant. The record will show that the examiner has been even more prompt in his actions upon this case than the applicant has been in responding to the official communications.

The decision referred to in office letter of the tenth of November, to wit, *Ex Parte* Timken, 24 O. G., 1089, was rendered subsequent to the decision of the board of examiners-in-chief, to which reference has also been made.

977 In the Timken decision the Commissioner held that an application for a reissue cannot be entertained if it were filed after the patent had run for more than two years. As the Commissioner, and not the examiners-in-chief, makes the rules governing the office, the examiner would not have been justified in failing to call the applicants' attention to the decision in question.

The applicant must get the Commissioner's authority for any further consideration of this case.

J. E. M. BOWEN,
Examiner Div. 9.

(Duplicate.)

Interlocutory Appeal.

In the Matter of the Application of MATHEWS and RACE — hydrants (reissue). Serial No. 75539.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Dec.* 14*th*, 1883.

SIR: You are hereby informed that a hearing on the above appeal from the decision of the primary examiner is fixed for Friday, December 28th, 1883, at 1 o'clock p. m.

By direction of the Commissioner.

Very respectfully, SCHUYLER DURYEE,
Chief Clerk.

Mathews & Race, care Rudolph M. Hunter, 901 Walnut St., Philadelphia, Pa.

978 PHILADELPHIA, *December 11th*, 1883.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for an improvement in hydrants (reissue), filed Oct. 31st, 1882, serial numbered 75539, and in charge of examiner in room 104.

Interlocutory Appeal.

I hereby appeal to you in person from the decision of the principal examiner in the above-entitled case, given on Dec. 6th, 1883, in which he refuses to take further action on the merits of the case on the ground that applicants have forfeited their right to a reissue because the application therefor was not made within two years after the grant of the original patent.

To support that view the examiner cites the decision by ex-Commissoner Marble in the *Ex Parte* Timkén case, O. G., p. 1089. In opposition thereto I lay before you the following statements:

It undoubtedly is the fact that the Supreme Court has practically set two years as a reasonable limit in which an inventor may surrender his original patent for the purpose of enlargement of the scope of his claims, provided the said enlargement is within the terms of the invention described and shown. But the Supreme Court has never as yet denied an inventor the right to reissue his patent to surrender the broad claims, and take claims of a more limited character, for if they did they would cut off the true and original intention of the statute.

The recent and sudden change in the ruling of the Supreme Court was due only to the fact that the reissue law had been
979 and was being abused, but only in one way, viz., the enlargement of claims of old, nearly expired, and worthless patents to enable the owner to control manufactures which have proved lucrative when unhampered by patents. This is the only case against which the reissue decisions were directed.

The Supreme Court has never yet, and unquestionably never will, decided that an inventor cannot reissue for the purpose of reducing the scope of his patent when he finds he has claims of too broad a character.

The decision in the *ex parte* case of Timken, referred to by the examiner, was in reference to a case of enlargement of scope of claims entirely, and not of limitation, and the Commissioner very properly decided that he had forfeited his right for a reissue, as considerably over two years had elapsed and no sufficient reason had been given why a reissue should be granted.

The case at issue here, however, is entirely different, for this patent was granted in 1869 and had only one claim, and that a very broad one. Applicants, believing that they controlled exactly what was set forth in their claim, attempted to enforce their rights; and, after carrying their case into the Supreme Court, a decision was rendered, on March 27th, 1882 (see O. G., vol. 21, p. 1349), in which the learned Justice Bradley said that it was too broad in its scope in view

of the New York hydrant, which had been in use before applicants' invention.

This was the first time applicants were aware that their patent was too broad, and have expended large sums of money and much valuable time in trying to uphold what they believed to be their rights, and were defeated wholly because the Patent Office
980 had granted them a claim too broad in view of the state of the art. This was not their fault.

Immediately after the adverse decision applicants prepared an application for a reissue, for, as they had but one claim, they could not avail themselves of the power of disclaiming. There was no alternate but a reissue, and without loss of time, after becoming aware of invalidity of their patent, they made the application and asked for more limited claims, knowing at that time exactly what they were really entitled to.

The examiner refused the claims, and an appeal was taken to the examiners-in-chief, who decided, on July 9th, 1883, that applicants were entitled to certain claims, and offered suggestions for their wording, and also upheld with suggestions certain of the claims asked for.

The claims were then redrawn and again submitted for examination, and the examiner was requested to get the consent of the examiners-in-chief to the changes which applicants offered in view of the said decision.

This he refused to do, on the ground that the decision of the Commissioner in *Ex Parte* Timkens, cited, denied applicants the right of a reissue; hence the appeal to you in person.

The examiner has misconstrued the application of the decision of the Commissioner, and has applied it to a case to which it was never intended to be applied.

For an inventor to strike out his broad generic claims and ask for more limited ones is in all effect a disclaimer, and should never be denied him, and that is just what is being done in the present case.

As much trouble and delay is likely to occur in just such
981 cases as this, where an inventor desires to surrender his broad claim and take more specific claims, I would respectfully and earnestly request that a decision may be given and printed in the Official Gazette, which will conclusively govern the practice in the Patent Office in such cases and enable an applicant to know whether he may or may not apply for a reissue to reduce the scope of his claims.

As this application has now been before the Patent Office for over a year, I trust that a decision may be given without much delay, for every day is now of much importance to applicants, for the life of the patent is fast drawing to a close.

Very truly, R. M. HUNTER, *Att'y.*

PHILADELPHIA, *December* 11th, 1883.

Hon. Commissioner of Patents.

DEAR SIR: In the matter of the application of Mathews & Race for an improvement in hydrants (reissue), filed Oct. 31st, 1882, serial numbered 75539, and in charge of examiner in room No. 104.

Interlocutory Appeal.

The examiner was right in stating that the decision in the Timken case was given after the decision of the examiners-in-chief. I had not noticed this point before, but the examiner has put an abnormal and totally untenable construction upon that decision, which only applied to the particular case, for the Commissioner's decision was only directed against enlargement of claims or reissues applied for for that purpose.

982 Now, to decide this point fully and for future reference, I have to-day filed an interlocutory appeal to the Commissioner, and I trust that the examiner will place the same before the Commissioner at once, as his reply will probably not take more than a few minutes to prepare, it merely referring, I suppose, to the Timken decision; or, as I believe, we understand it is merely to get a positive decision from the Commissioner, no reply is really necessary, as all the points are brought out in my appeal.

Very truly, R. M. HUNTER, *Att'y.*

Examiner's Statement.

IN THE U. S. PATENT OFFICE.

In the Matter of the Application of NANCY RACE, administratrix of Washburn Race, dec'd, and SAMUEL R. C. MATHEWS, for reissue of patent No. 96959, dated Nov. 16, 1869, said application having been filed Oct. 31, 1882.

Before the honorable the Commissioner of Patents.

The question raised by this appeal is as to applicants' right to reissue their patent granted Nov. 16th, 1869, their application for reissue having been filed Oct. 31st, 1882.

On July 9th, 1883, the board of examiners-in-chief decided in this case that the applicants were entitled to a reissue patent with certain modifications in their claims. The applicants delayed amending until Oct. 2nd, 1883, upon which date they filed an amendatory paper in which they stated, "while not conforming in all particulars to the decision of the board, at the

983 same time it embodied substantially the suggestions made by that tribunal." In responding to this amendment the examiner called the applicants' attention to the decision of the Commissioner in *Ex Parte* Timken rendered subsequent to the decision of the examiners-in-chief in this case, in which decision the Commissioner held that an application for a reissue could not be entertained if presented after the patent sought to be reissued had been in existence for more than two years.

Upon the point as to the applicants' right to reissue after a delay of more than two years, attention is respectfully called to *Ex Parte* Flynn, 23 O. G., page 2029; Hill *vs.* Prentiss, M. S. S. Decisions, vol. 24, page 214, and *Ex Parte* Buckingham, *Id.*, p. 46.

The applicants maintain that the decision of the Supreme Court of the United States concerning the patent sought to be reissued (21 O. G., page 1349) defined a subject-matter for which the applicants were entitled to a patent. My opinion is that the Supreme Court did not go to the extent of deciding that the applicants were entitled to take a new or reissued patent, with a modified claim, at this time. The Court did decide, however, that if in the patent before it a claim covering certain restricted subject-matter had been presented it might have been sustained.

U. S. Patent Office, Dec. 26, 1883.

J. E. M. BOWEN,
Examiner Div. 9.

984 (Duplicate.)

Interlocutory Appeal.

In the Matter of the Application of RACE and MATHEWS — hydrant, reissue. Serial No. 75539.

Room No. 4.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Jan'y 17th*, 1884.

SIR: In reply to yours of the 16th instant, you are informed that the Commissioner has the above appeal under consideration, and you will be advised when a decision is rendered.

By direction of the Commissioner.

Very respectfully, SCHUYLER DURYEE,
Chief Clerk.

Rudolph M. Hunter, 901 Walnut St., Philadelphia, Pa.

PHILADELPHIA, *January 16th*, 1884.

Hon. Commissioner of Patents.

SIR: A hearing of interlocutory appeal was fixed for December 14th, 1883, in the case of Race & Mathews for reissue on hydrant patent case filed October 31st, 1882, and No. 75539. I have not as yet received any notice of the decision, and would like to hear relative to the same as soon as possible, as the life of the patent is fast expiring.

Very truly, R. M. HUNTER.

985 (Duplicate.)

Interlocutory Appeal.

In the Matter of the Application of MATHEWS and RACE — Hydrants, reissue. Serial No. 75539.

Room No. 4.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C., *Jan'y 25th*, 1884.

SIR: You are hereby informed that the decision of the primary examiner is overruled by the Commissioner.

By direction of the Commissioner.

Very respectfully, SCHUYLER DURYEE,
Chief Clerk.

Mathews & Race, care Rudolph M. Hunter, 901 Walnut St., Philadelphia.

986 *Interlocutory Appeal.*

U. S. PATENT OFFICE.

Ex Parte MATHEWS and RACE.

Hydrants.

Reissue application filed October 31, 1882.
Mr. R. M. Hunter, for applicants.

It appears from the records of this case that on November 16, 1869, there was granted to applicants a patent which contained one broad claim, which was subsequently, to wit, in 1882, by the Supreme Court held to be broader than they were entitled to. Within a few months after such decision the reissue application under consideration was filed with a view of narrowing the claim.

The reissue contains several claims, each of which is more restricted than that contained in the original patent, but whether they are sufficiently narrow, in view of the state of art and the decision of the Supreme Court above referred to, I am not at present called upon to decide.

The question now presented is whether the delay between the granting of the original patent and the filing of the present application does not operate as a bar to the reissue. The examiner holds that it does, and, in support of his decision, refers to a number of cases decided by my predecessor, in which two years are indicated as the longest period which may elapse between the date of a patent and the filing of an application for a reissue thereof.

987 I have carefully examined said decisions, and find that they treat of cases in which the object was to broaden the claims, and do not contemplate a case where the purpose is to restrict or narrow them.

Section 4916 of the Revised Statutes provides: "Whenever any patent is inoperative or invalid by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, * * * the Commissioner shall, on the surrender of such patent, * * * cause a new patent for the same invention * * * to be issued to the patentee."

In construing this section the courts have of late decided that a reissue for the purpose of enlarging the claim is not in terms provided for therein, and that, though in a case of undoubted accident or mistake, a reissue curing the defect resulting therefrom may be permitted under the general provisions of the law, yet in each case relief must be speedily applied for. (Miller *v.* Bridgeport Brass Co., 21 O. G., 49.) But in the same decision the court hold that the statute in terms authorizes a reissue for the correction of errors in the description and for the purpose of narrowing the claim, and suggest that a reissue may be proper in such cases after a longer delay than would be sufficient to bar a reissue for enlargement.

An examination of the decisions upon the question of reissue will disclose the fact that the rule which suggests that laches on the part of the applicant justifies a rejection of the application has generally been applied when the end, aim, and purpose were to enlarge and broaden the claims.

I do not mean to say or suggest that a party may not be guilty of such laches as would bar an application for reissue, even
988 when it is for the purpose of restricting the claim, but merely indicate that the courts hold applicants who seek in a reissue to broaden or enlarge their claim to a much more rigid rule than in cases when the reverse is true, and for reasons which are obvious.

There is no case reported which decides the question as to what is unreasonable delay in applying for a reissue for the purpose of restricting or narrowing the claim, but the decision already referred to will still be useful in guiding to a right conclusion in this case, as the question of the effect of laches is to be considered.

Section 4922 of the Revised Statutes provides, in substance, that a party, upon disclaiming any definite part of a patented invention, may maintain a suit for such other part of the invention as is justly his own, provided he has not unreasonably neglected to file the disclaimer.

This section and section 4916, being *in pari materia*, must be construed together. The latter sections provides that whenever a patent is "inoperative or invalid by of * * * the patentee claiming as his own invention or discovery more than he had a right to claim as new, * * * the Commissioner shall, on surrender of such patent, * * * ," etc., while the former section provides that he may maintain suit, etc., on such part of a patent as is his own if he has not unreasonably neglected to file the disclaimer.

Under these sections it is clear to my mind that unreasonable delay in filing a disclaimer of the parts of the invention to which the patentee was not entitled would bar the reissue. The surrender of a patent with a view to narrowing the claim is in effect a dis-

989 claimer of all contained in the original claim in excess of what is demanded in the reissue application, and the same rule would apply.

In November, 1869, a patent was issued to applicants, by which it appeared the tribunal duly authorized to adjudicate upon that question had determined that the patentees named in said patent were entitled to have all the claims mentioned and recited therein. The patent vested in them *prima facie* the exclusive right to make, use, and vend, etc., the thing as mentioned and described in their several claims, and until the right so vested was modified or annulled by a competent tribunal.

In the absence of proof to the contrary, we must presume that the patentees believed they were entitled to all they claimed. They had so sworn, and the examiner who was by law charged with the determination of that question had so found, and the contract (patent) had been written in conformity to the finding. The Supreme Court modified the contract, and said the patentees claimed and were allowed more than they were entitled to, and refused a decree in their favor. The Court, in fact, found the claims were broader and covered more than the patentees had a right to claim as new. The Court did not draw the line definitely between that which the applicants might and that which they might not have claimed; and whether they would have sustained the patent if narrowed to the extent now presented in the application for reissue, I am not at present called upon to decide.

The suit seems to have been pending in the courts for over twelve years, during which time we must suppose the public were paying tribute as if the patent were valid.

990 The patentees have been, in accordance with what they supposed to be their strict legal right, exacting tribute where none was due.

The Supreme Court having determined, if not the limit of applicant's legal rights, at least that those theretofore enjoined under their patent were excessive, they come and ask this bureau to review its former action, and, in the light of the decision referred to, grant a reissue for such claims as they allege might properly have been secured under their original application.

The decision of the Court was in March, 1882, and application for reissue was filed in October of the same year. From what date shall we regard the lapse of time—the issuance of the surrendered patent or from the date of the decision of the Supreme Court by which the applicants were adjudged to have claimed and been allowed more than they were entitled to?

There are some cases directly in point, viz., O'Reilly *v.* Morse, 15 How., 62, and Tuck *v.* Bramhill, 3 Fish., 400. In the former case the Supreme Court held that it was not unreasonable neglect to file a disclaimer after the court had held the claim to be too broad; and the same doctrine is announced in the latter case. If these decisions are to serve as guides, and they must until modified or reversed, or the rule they prescribed is changed by statutory enactment, I must

hold applicants to be in time, though it may be doubted whether the delay of several months is excusable.

The decision of the examiner is overruled.

January 24, 1884.

BENJ. BUTTERWORTH,
Commissioner.

991 FEB. 2, 1884.

The honorable the board of examiners-in-chief.

GENTLEMEN: The application for reissue of Mathews and Race (No. 75539), which was considered by you on the 9th of July, 1883, is herewith respectfully referred to you for instructions as to whether or not the new claims embodied in amendment filed on the 2nd of October, 1883, conform to the suggestions contained in your decision above referred to.

In presenting these claims the applicants state that they do not conform to the language of the suggestions, but substantially agree therewith.

Your obedient servant,

J. E. M. BOWEN,
Examiner Div. 9.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *Feb.* 5, 1884.

Nancy Race, adm'r'x of W. Race, dec'd, and Samuel R. C. Mathews, ass'ors, care R. M. Hunter, 901 Walnut St., Phila., Pa.

SIR: Your application for reissue of patent No. 9695*d* for improvement in hydrants has been examined and allowed.

The patent will be forwarded to you as soon as practicable in due order of business.

Very respectfully,

BENJ. BUTTERWORTH,
Commissioner of Patents.

992 Serial No. 75539. Ex'r book No. 102.

1882. Bowen.

Reissue.

Mathews & Race.

No. 10452.

Nancy Race, administratrix of Washburn Race, dec'd, and Samuel R. C. Mathews, said Washburn Race and Mathews ass'ors by mesne ass'ts to S. R. C. Mathews, Richard Wood, Edward R. Wood, George

Wood, Randolph Wood (I. H. Johnson, administrator of said Randolph Wood, deceased), and Walter Wood, all of Philadelphia, Pa.

Of Volney, Philadelphia.
County of Oswego, "
State of New York. Pennsylvania.
Invention,

Hydrants.

Parts of application filed.

Petition, Sept. 14, 1882.
Affidavit, Oct. 31, "
Specification, Sept. 14, 1882.
Drawing, " " "
Certified copy old patent, " " "
Abstract of title, " " "
Cert. deposit.

1. Cash, $30, Sept. 14, 1882.
App, filed complete Oct. 31, 1882.
No. and date of original patent, 96959, Nov. 16, 1869.
2. Examined by ex'rs-in-chief Feb. 4, '84. Bowen, ex'r.
3. Countersigned, J. W. Babson, for Commissioner, Feb'y 5, '84.
Notice of allowance, Feb'y 5, 1884.
Reissued Feb'y 26, 1884.
Att'y or P. O. address, Rudolph M. Hunter, 901 Walnut St., Phila., Pa.

993 Class

1882.

Contents.

Application papers.
Appli'n.
Prelim. amend't A, Oct. 9, '82.
Let., Nov. 3, 1882.
Letter, Nov. 9, 1882.
Let., Nov. 14, 1882.
Interlocutory appeal, Nov. 18, '82.
Examiner's statement, Nov. 25, '82.
Ex'r's action affirmed, Dec. 4, '82.
Affidavits, Dec. 20, '82.
Rejected Jan. 5, 1883.
Arg'm't and amend't, Jan. 23, 83.
Rejected II, Feb. 20, '83.
Int'y appeal, Mar. 7, '83.
Letter, M'ch 17, '83.

Appl. file.

Appeal, Mar. 29, '83.
Ex'r's statement, May 16, '83.
Ex'r's dec's'n aff'd July 9, '83.

Let. and amend't B, Oct. 2, '83.

Letter, Nov. 10, '83.
Letter, Nov. 14, 1883.
Letter, Nov. 30, '83.
Letter, Dec. 3, 1883.

Title.

Letter, Dec. 6, '83.
Improvement in hydrants, water distribution, hydrants and plugs.

994 Serial No. 37976. Ex'r book No. 152.

1881.

Patent No. 10452, reissue.

Of
County of
State of
Invention.

Parts of application filed.

Petition, 188–.
Affidavit.
Specification.
Drawing.
Model.
Specimen.
First fee, cash.
" cert.
App. filed complete.

Examined.
Countersigned; for Commissioner.
Notice of allowance, 188–.
Final fee, cash, 188–.
" cert., 188–.
Patented 188–.
Att'y or P. O. address.

1882.

Contents.

Application papers.
Int'y appeal, Dec. 12, 1883.
Ex'r's statement, Dec. 26, '83.
Ex'r reversed by Com'r, Jan. 24, '84.
Referred to ex'rs-in-ch'f, Feb. 2, '84.

Title.

Improvement in
Ex'd: J. A. W.
M. McK.

995 UNITED STATES PATENT OFFICE.

NANCY RACE, of Volney, New York (administratrix of Washburn Race, deceased), and SAMUEL R. C. MATHEWS, of Philadelphia, Pennsylvania; said Washburn Race and Mathews, assignors, by mesne assignments, to S. R. C. Mathews, Richard Wood, Edward R. Wood, George Wood, Randolph Wood (I. H. Johnson, administrator of said Randolph Wood, deceased), and Walter Wood, all of Philadelphia, Pennsylvania.

Hydrant.

Specification forming part of Reissued Letters Patent No. 10452, dated February 26, 1884. Original No. 96959, dated November 16, 1869. Application for reissue filed October 31, 1882.

To all whom it may concern:

Be it known that Washburn Race (deceased), of Lockport, county of Niagara, State of New York, represented by Nancy Race, administratrix, of the town of Volney, county of Oswego, and State of New York, and Samuel R. C. Mathews, of the city and county of Philadelphia, State of Pennsylvania, formerly of Lockport, New York, did invent an improvement in hydrants, of which the following is a specification:

The invention has reference to hydrants; and it consists in improvements upon letters patent granted to us January 26, 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock and embedded in the ground, but more specifically in combining a case or jacket with the hydrant-stock, the said jacket being loosely fitted to said hydrant-stock, and adapted to have end play to compensate for the heaving by frost, sliding both at top and bottom, and keeping a dead-air space between said hydrant-stock and jacket; further, in so forming and connecting the loose case or jacket above specified that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place upon the elbow at bottom when the frost has expended its force.

The object of this invention is to provide a frost-jacket so fitted to the hydrant that it may have end play by means of slip-joints both at top and bottom to compensate for heaving by frost, and so fitted to the hydrant that when the stock is removed from the elbow at bottom for repairs no gravel, dirt, mud, etc., can find its way into said elbow to injure the valves, etc., since the jacket forms a practically close sliding joint with the flange on the elbow at the bottom and extends to or above the ground at top.

In the drawings figure 1 is a sectional elevation of the improved hydrant, Fig. 2 is a horizontal cross-section of same.

A indicates the hydrant proper, the part *a* being above ground and the stock *b* being below the same, and inclosed within the casing or jacket B. The loose case or jacket B, which surrounds the hydrant-stock, is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and made to slide

upon the hydrant at the top of the hydrant-stock *b*, and also at the bottom upon the hydrant-stock, or upon the elbow to which the stock is secured, and the end play is limited by the shoulders G G′, respectively, at top and bottom. This case or jacket B rests upon the elbow C, and is centered by same through the agency of its flange *h*, and when heaved by frost it may be driven back again and rest upon the said elbow without displacement. The earth is filled in about the case or jacket B and elbow C at bottom, while the
996 hydrant-stock itself is simply inclosed within said jacket. The lower end of the case preferably slides into a flange, *h*, of the elbow connection C, and it may be centered to prevent axial turning by a sleeve or projection, *c*, which slides in groove D, formed in the flange *h*.

In the use of this hydrant the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye. By this arrangement the heaving action is expended entirely upon the outside case, and can in nowise affect the hydrant. The heaving by frost is a constant source of trouble and expense in hydrants by causing the elbows at the bottom, connecting with the "main," to break; also throwing the hydrant itself out of position. We aim to remedy this difficulty by giving the desired end play, and at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

These hydrants can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

Having now described the invention, what is claimed as the invention of the said Washburn Race and myself is—

1. The detached case or jacket B, combined with a hydrant to have end play or vertical motion, to compensate for heaving by frost, the said case B forming a comparatively close sliding joint with the hydrant both at top and bottom, the upper part of same passing outside of the main stock of hydrant, so that any change in its position can be be easily ascertained and the case driven back to its place without disturbing the hydrant.

2. The detached case or jacket B, combined and arranged with a hydrant to have end play or vertical motion, to compensate for heaving by frost, the said case B closely surrounding the hydrant at the bottom and supported by the main elbow, and the upper part of the same passing outside of the main stock of hydrant, so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant, substantially as set forth.

3. As an improvement on the detached case or jacket surrounding the hydrant-stock shown and described in the former patent of Race and Mathews, dated January 26, 1858, No. 19206, the case B forming a comparatively close sliding joint both at the top and bot-

tom, and made shorter than that portion of the hydrant-stock upon which it is to have end play, and so that such case shall have a range for vertical motion upon said hydrant-stock, substantially as and for the purpose specified.

In testimony of which invention we hereunto set our hands.

NANCY RACE,
Administratrix, etc., of Washburn Race, Deceased.

Witnesses:
C. H. DAVID.
N. H. GILBERT.

SAMUEL R. C. MATHEWS.

Witnesses:
R. M. HUNTER.
R. S. CHILD, JR.

(Here follows diagram marked p. 997.)

998 & 999 "EXHIBIT PENDRY COMPARISON."

No. 75344.

MARCH 10, 1868.

I claim as new—

(1.) A hydrant or water-plug constructed substantially as shown and described—that is to say—

With the parts A and B connected together as shown—

And with a cylinder-valve and a waster-water valve connected and operated in combination, substantially as herein specified.

(2.) The arrangement of the parts A, B, valve D, case C, and stuffing-box H, as herein described, for the purpose specified.

No. 6990.

MARCH 14, 1876.

What I claim is—

(1.) In combination with a hydrant or fire-plug a detached and surrounding casing, C (said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbance of the hydrant or plug proper), substantially as shown.

(2.) In combination with a hydrant or fire-plug pipe A, the supply-pipe B, and cylinder-valve and waste-valve, connected and operated substantially as herein shown and described.

(3.) The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown.

(Here follows diagrams marked pp. 1000 and 1002.)

1003, 1004, & 1005 *Order Postponing Hearing until October* 29.

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment,

W. RACE & S. R. C. MATHEWS,

(N. RACE administratrix of W. RACE, deceased,) assignors, by mesne assignments, to S. R. C. MATHEWS, RICHARD WOOD, E. R. WOOD, G. WOOD, RANDOLPH WOOD, (I. H. JOHNSON administrator of said RANDOLPH WOOD, deceased,) and W. WOOD.

HYDRANT.

No. 10,452. Reissued Feb. 26, 1884.

No 494
Flower et al
v
Detroit et al
p997

FIG. 1

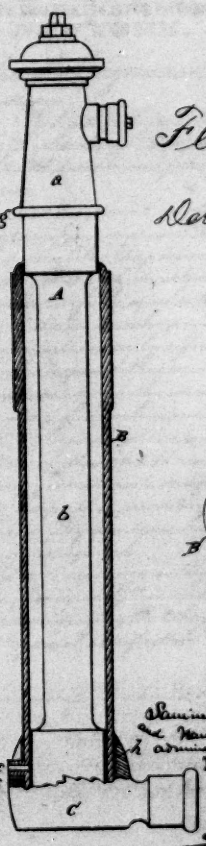


FIG. 2

Attest
L. J. Mathews

Inventors
Samuel R. C. Mathews
and Nancy Race
Administratrix of
Hezekiah Race (deceased)
By their atty.

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In testimony of which invention we hereunto set our hands.

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Administratrix, etc., of Washburn Race, Deceased.

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SAMUEL R. C. MATHEWS.

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With the parts A and B connected together as shown—

And with a cylinder-valve and a waster-water valve connected and operated in combination, substantially as herein specified.

(2.) The arrangement of the parts A, B, valve D, case C, and stuffing-box H, as herein described, for the purpose specified.

No. 6990.

MARCH 14, 1876.

What I claim is—

(1.) In combination with a hydrant or fire-plug a detached and surrounding casing, C (said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbance of the hydrant or plug proper), substantially as shown.

(2.) In combination with a hydrant or fire-plug pipe A, the supply-pipe B, and cylinder-valve and waste-valve, connected and operated substantially as herein shown and described.

(3.) The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown.

(Here follows diagrams marked pp. 1000 and 1002.)

1003, 1004, & 1005 *Order Postponing Hearing until October* 29.

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment,

W. RACE & S. R. C. MATHEWS,

(N. RACE administratrix of W. RACE, deceased,) assignors, by mesne assignments, to S. R. C. MATHEWS, RICHARD WOOD, E. R. WOOD, G. WOOD, RANDOLPH WOOD, (I. H. JOHNSON administrator of said RANDOLPH WOOD, deceased,) and W. WOOD.

HYDRANT.

No. 10,452. Reissued Feb. 26, 1884.

No 494
Flower et al
v
Detroit et al
p997

FIG. 1

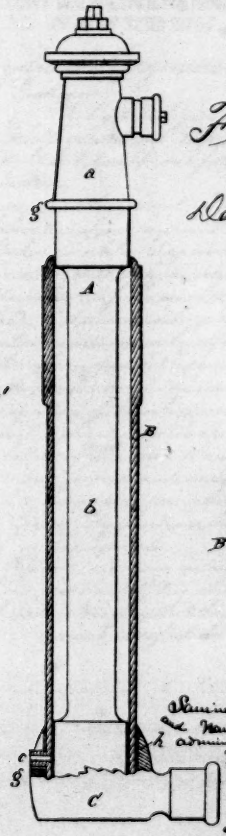


FIG. 2

Attest
L. J. Mates

Inventors
Samuel R. C. Mathews
and Nancy Race
h administratrix of
Washburn Race (deceased)
By their atty.

1000

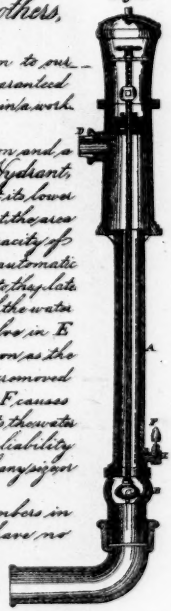
"Exhibit" Ayres' Circular
Walter S. Nassau
Specimen Exp.

AYRES'
IMPROVED
Fire Hydrants and Stopcocks.

MANUFACTORY Nos. 174, 176 & 178 RIVINGTON STREET,
NEW YORK.

Fig. 1.

Fig. 2.



To Hydraulic Engineers and others,

Gentlemen

We beg to call your attention to our improved Fire Hydrants and Stopcocks, guaranteed perfectly tight and durable and fitted up in a workmanlike manner.

Figures 1 and 2 represent an elevation and a sectional elevation of our improved Fire Hydrant, A is the Stock or case below the pavement, at its lower end B, it is enlarged to such an extent that the area around the valve C is fully equal to the capacity of the nozzle D. E is a waste valve perfectly automatic in its operation as will be seen by reference to the plate.

When the valve is opened, the pressure of the water acting on the lower side of the small valve in E closes the opening of the valve, and as soon as the main valve C is closed, the pressure being removed from the bottom of the valve, the weight F causes the valve to drop from its seat, and permits the water in the stock to escape, thus preventing any liability to freeze. These Hydrants are made of any size or number of nozzles required.

These Hydrants are in use in large numbers in many of our principal Cities, and we have no hesitation in saying that they give general satisfaction.

All communications should be addressed

Estate of Samuel P. Ayres,
Moses Mern, Supt
Nos. 174, 176 & 178 Rivington Street
New York.

No 494
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p1000

No. 494.
Flower et al
v
Delfort et al
} p. 1003

FIG. 1.

Exhibit Stack Valve Combination
Walter Charsha
Special Ex.

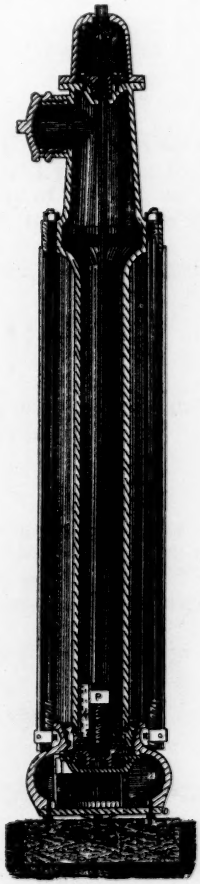

FIG. 2.

at the district court room, in the city of Detroit, on Monday, the sixth day of October, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause, on motion of Henry M. Duffield, solicitor for defendants, is is ordered that the final hearing upon pleadings and proofs be postponed until the twenty-ninth day of October inst.

1006 *Hearing Begun.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court room, in the city of Detroit, on Wednesday, the twenty-ninth day of October, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

This cause, having come on for hearing on pleadings and proofs, is argued in part and continued for further hearing.

1007 *Hearing Continued.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court room, in the city of Detroit, on Thursday, the thirtieth day of October, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause the court hears a further portion of the arguments of counsel.

1008 *Cause Submitted.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court room, in the city of Detroit, on Friday,

the thirty-first day of October, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause the court hears the conclusion of arguments of counsel; and thereupon said cause is submitted.

1009 *Final Decree.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court room, in the city of Detroit, on Monday, the seventeenth day of November, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF THE City of Detroit, Benjamin Vernor, President, and The Board of Water Commissioners of the City of Detroit. } In Equity.

This cause came on to be heard upon pleadings and proofs, and was argued by counsel; and thereupon, upon consideration thereof, it was ordered, adjudged, and decreed that the bill of complaint in this cause be, and the same is hereby, dismissed with costs against plaintiffs, to be taxed, and that defendants have execution against plaintiffs therefor.

1010 *Opinion of Judge Brown. Filed Nov.* 17, 1884.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } No. 2872. In Equity.

This was a suit for the infringement of reissued letters patent No. 6990, granted March 14, 1876, to Thomas R. Bailey, Jr., of Lockport, New York, for an improvement in hydrants. The bill, after averring in the usual form the granting of the original patent No. 75344 to Bailey, dated March 10, 1868, set forth that in February, 1876, plaintiffs, being about to acquire an interest in the invention, "only by the aid of skilful solicitors learned in the law, and after careful examination of the letters patent and the papers and model on file and deposit in the Patent Office," with the application therefor, first learned that said letters patent were inoperative and invalid by reason of defective and insufficient specifications, and that such defect arose through a discrepancy between the drawing forming part of the specification and the model; that one of the distinguishing features of the invention consisted in a loose casing around the tube or upright part of the hydrant, connecting

the same with the water-main or horizontal part thereof, fitting the same like a sleeve, resting, when in proper position, with its lower end upon the water-main, or flange thereof below, so as to slip up on the said tube, which feature was fully shown and properly exhibited in and by the said model, but was not shown in the drawing, for the reason that the drawing was made by the attorneys of Bailey from the model, with the said case accidentally out of its proper position, so that in the drawing the case is represented as not only resting upon the water-main or flange thereof below, but as coming up flush with the flange above it on the tube of the hydrant, and that while the model showed the said case as loose, because of its having an end play up and down on the hydrant, yet the drawing showed the case connecting the tube and water-main together as being confined at the top as well as at the bottom, so as not to be a loose case and as not to have such end play, and that on learning of this fact plaintiffs at once informed Bailey, who then first discovered the defect in his specifications and procured a reissue of the patent with the drawing, specifications, and claims changed
1011 to correspond with his actual invention. The [bill] further averred that this reissued patent was assigned to plaintffs, and that defendants had been guilty of infringing the same by making use of a large number of hydrants containing this device. It was insisted, upon the argument, that defendants had infringed the first and third claims of the reissue, which read as follows:

"1. In combination with a hydrant or fire-plug, a detached and surrounding casing, C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing without derangement or disturbance of the hydrant or plug proper, substantially as shown.

"3. The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown."

The defenses were as follows:

First. That the reissue was not for the same invention as the original patent.

Second. That the reissue was not taken until eight years after the original patent, and was procured with new and enlarged claims for the purpose of covering structures which had meantime been put into extensive use by these defendants and others, and which had not been embraced by any claims of the original patent.

Third and fourth. That the first claim of the reissue, which is the only one plaintiffs could claim as infringed, was substantially the same as the claim of another patent already held by the Supreme Court of the United States to have been anticipated by other devices.

Fifth. That defendants had used their hydrants for upwards of 11 years before suit was brought, and during at least 9 years of this time such use was fully known by the plaintiffs, who did nothing meanwhile to enforce their alleged rights, and who, therefore, by reason of laches, could now have no standing in a court of equity.

The most important question in this case relates to the validity of the reissue. This is claimed, in the first defense, to be invalid as matter of law, upon a comparison of the original and reissued patents. By the second defense it is insisted that it is also invalid as a matter of fact. In other words, that in procuring the reissue the patentee was guilty of laches; that there was no such mistake, accident, or inadvertence as authorized the Commissioner to take cognizance of the case, and that the reissue had not been procured *bona fide* to correct any such inadvertence or mistake, but for the purpose of covering the device of Race & Mathews, which in the mean time had been put into extensive use by the defendants and others throughout the country.

It is clear that under the earlier decisions of the Supreme Court the second defense would be unavailing, since it had been
1012 uniformly held up to 1874 that the determination of the Commissioner as to the question of inadvertence, accident, or mistake was conclusive, and that the jurisdiction of the court was limited to a comparison between the original and the reissued patents, and to the ascertainment whether there was a fatal variance between the two. The law upon this subject was thus summarized by Mr. Justice Clifford in Seymour *v.* Osborne, 11 Wall., 516:

"Where the Commissioner accepts a surrender of an original patent and grants a new patent his decision in the premises in a suit for infringement is final and conclusive, and is not re-examinable in such suit in the circuit court unless it is apparent upon the face of the patent that he has exceeded his authority; that there is such repugnancy between the old and the new patent that it must be held, as a matter of legal construction, that the new patent is not for the same invention as that embraced and secured in the original patent."

This limitation upon the power of the court was substantially reasserted in Russell *v.* Dodge, 93 U. S., 460–464, and in Ball *v.* Langles, 102 U. S., 128.

In the case of Kells *v.* McKenzie, 9 Fed. Rep., 284, decided in 1881, we had occasion to examine all the cases up to that time, and then came to the conclusion that there was nothing in the statute or in the opinions of the Supreme Court to indicate that we were at liberty to review the action of the Commissioner in this particular. Such, too, I understand to be the general principle of law, applicable not only to judgments of courts of competent jurisdiction, but to the determinations of all officers acting judicially. Hancock Inspirator *v.* Jenks, 21 Fed. Rep., 911. Whether, under the later opinions of the Supreme Court, this doctrine is modified to the extent of permitting us to institute an inquiry into the action of the Commissioner, and to determine whether there was such accident, inadvertence, or mistake as authorized him to grant a reissue, it is unnecessary to decide, since it is clear to my mind that the first claim of this reissue cannot be supported upon any theory of the law.

In the case of Kells *v.* McKenzie, above referred to, we followed what seemed to be the tenor of the most recent decisions of the Supreme Court, and held that the validity of a reissued patent did

not depend wholly upon the fact that the new features attempted to be secured thereby were suggested in the models, drawings, or specifications of the original, and hence that where a patentee, in his specifications, claimed as his invention a particular part of the machine, and his claims were all limited to that part, a reissue embracing other and distinct portions of the machine was not for the same invention, and was, *pro tanto*, void, although the designs accompanying the original patent showed all the features contained in the reissue. Subsequent cases in the Supreme Court indicate that the right to a reissue should be still further restricted; but the rule adopted in that case is quite a sufficient guide to us for
1013 the determination of this. In this connection, then, it becomes important to consider of what invention Bailey was endeavoring to secure the monopoly when he applied for his original patent. In his specifications he declares that his invention "relates to a new and improved method of constructing fire plugs or hydrants; and the invention consists in operating a cylinder-valve in a suitable case and in the arrangement and combination of parts connected therewith, as hereinafter described." Words could hardly be chosen to indicate more clearly that his invention was that of a cylinder-valve in a case fitted to receive it and in the arrangement and combination of other parts of the hydrant connected therewith. The mere operation of a valve would not be patentable unless the valve itself or the combination of valve and case were patentable. Nothing is said regarding a loose case having an end play, and the theory of plaintiffs, that the invention may be made to consist also "in a suitable case" by inserting a comma after the words cylinder-valve, is too fanciful to be worthy of serious consideration.

Following this description of his invention is a reference to his drawing, in which A is said to represent the hydrant-tube; B, the horizontal section connected with the water-main; C, a loose case around the hydrant-tube for protecting the tube from dirt, etc.; D, the cylinder-valve; E, a rod having a screw-thread on its upper end; F, a sleeve-nut; G, the head of the hydrant; H, the stuffing-box, etc. Having thus described his invention, in which a loose case is merely mentioned as one of the parts of the hydrant and having no especial value except for protecting the tube from dirt, and in which no mention whatever is made of its having an up-and-down movement, the patentee claims—

First. A hydrant or water-plug, constructed substantially as shown and described—that is to say, with the parts A and B connected together as shown, and with a cylinder-valve and a waste-water valve connected and operated in combination, substantially as herein specified.

Second. The arrangement of the parts A B, valve D, case C, and stuffing-box H, as herein described, for the purpose specified.

In the drawing attached to this original there is no indication that C has any up-and-down movement, as it rests at its lower end upon the horizontal main and at its upper end is confined by a flange which would effectually prevent such movement. In the reissued patent the description, the specifications, the claims, and the

drawing are all changed, and the loose case C, with an entirely distinct and new function assigned to it, is thrust prominently forward as the leading feature of the invention. In his new specifications the patentee says that his invention "relates to improvements in the construction of fire plugs or hydrants," but no mention is here made of its consisting of a cylinder-valve in a suitable case, or of the combination suggested in the corresponding portion of the original specifications. C is first described as "a loose, movable case around the hydrant-tube." After having at length described the entire hydrant substantially as before, he introduces the loose case C as a distinct feature of his invention in the following language:

1014 "It will be observed that the casing C loosely rests upon the main B, or upon a branch projecting upward from the same. This casing extends upwards, enveloping the main portion of the water-pipe A—at least that portion which is subterranean. Said casing extends upwards and fits loosely about the plug or hydrant at the portion A. Above the upper terminus of the casing C is provided the bead A, upon the hydrant proper. Sufficient space is left between the bead A and the upper terminus of the casing C to permit sufficient up-and-down play of the said casing C for the purpose which will hereafter more fully appear. This distance between the bead and casing may be adjusted to any *described* distance, thus lengthening or shortening it by means of its screw attachment at its base."

"The main function of the casing C is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug. This process of freezing causes the surrounding earth by its expansion to lift or upheave, and thus be liable to derange the hydrant or plug. This upheaval or movement is received by the casing C, which, by its capability of sliding loosely up and down, will accommodate the upheaval of the earth above mentioned without any liability to derange the plug or hydrant. This is the chief function of the casing C, although it likewise serves the purpose of protection to the water-pipe A."

A new and distinct claim is also introduced as follows:

"1. In combination with a hydrant or fire-plug, a detached and surrounding casing, C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown."

The drawing attached to his specifications is also changed, so as to give sufficient space between the top of the loose casing C and the flange above it to allow an end play of the casing of several inches. From this comparison of the two patents it seems to us entirely clear that here is not only an expansion of the original claim, but an attempt to introduce an entirely new invention neither claimed nor suggested in the original patent. It is scarcely necessary to say that this cannot be done.

The plaintiffs' argument, that the words "with the parts A and B, connected together as shown," used in the first claim of the origi-

nal patent, referred to the connection made by the loose casing C, is wholly untenable. This casing surrounds the stock or hydrant-tube A, and rests upon a shoulder projecting from B, but it can no more be said to connect them than the ramrod of a musket can be regarded as connecting the stock and barrel, simply because it runs loosely through loops in the one into a hole provided for it in the other. When we speak of the connection of two parts we mean that device by which they are held together; and the connection referred to in this claim is defined by the specifications so clearly as
1015 to leave no doubt as to what was passing in the mind of the inventor—"the tube A is secured to horizontal section B by a ring-nut M, which contains recesses" etc. As this is the only connection referred to in the specifications, the claim must be construed with reference to it. The telescopic casing C is, with reference to this device at least, no connection at all. It is true that the joints of a telescope are said to be connected together, although the connection is, to a certain extent, a loose one; but in fact these joints are held together by flanges, which prevent a total disconnection without unscrewing or breaking the instrument. This illustration obviously has no application here. A glance at the drawing, too, shows that the casing C has no up-and-down play at all, but is confined at the top by a flange projecting from the stock. Indeeed, the bill avers that this perpendicular movability was a feature not shown in the drawing.

"Yet the said drawing showed the said case, though forming a part of the hydrant, connecting the tube and water-main together, as being confined at the top as well as at the bottom, so as not to be a loose case and as not to have such end play." The only function of this casing was that described in the specifications, viz., the protection of the hydrant from the surrounding earth or dirt. In the drawing annexed to the reissue, however, there is given to the casing an end play of several inches by widening the space between the top of the casing and the flange of the stock.

We find nothing, then, in the original patent which lends support to plaintiffs' theory that Bailey was the inventor of the loose casing described in the reissue, and we are therefore of the opinion that the Commissioner had no jurisdiction to grant such reissue.

But conceding, for the purpose of this case, that we may re-examine the decision of the Commissioner as to the question of mistake or advertence, the evidence tends only to show that Bailey was, or may have been, the first inventor of the loose casing having an up-and-down movement, and that the model forwarded by him to the Patent Office embodied this invention. The mistake, then, was that of his attorneys in preparing the original drawings and specifications. There is no evidence that he was mistaken or misled as to the legal import of his patent, or that he intended to claim more than he did claim. Unfortunately the model was destroyed by a fire in the Patent Office, and there is no direct testimony that it did in fact exhibit an up-and-down movement, except that of the inventor himself, who says that during the winter of 1866–'67, or the spring of 1867, he made two models, one of which he sent to Munn

& Co., his patent solicitors, in New York, and the other of which he produced and put in evidence as "Exhibit Bailey Original Model." He testified in general terms that there was no difference between the two, but he does not undertake to compare them in detail, and the lapse of sixteen years and a half since the model was constructed certainly affords a basis for an argument that he may be mistaken in his recollection. Two other witnesses testify that they
1016 saw the two models, and that one of them was the exhibit; but neither of these witnesses undertake to describe in detail the one which became the Patent-Office model, nor to say that it was a duplicate of the exhibit in every material respect. Their attention does not seem to have been called to the peculiar feature which is now made the basis of the plaintiffs' claim. Whether this model did, in fact, exhibit this end play is not proven to my mind with that clearness which we should regard as necessary to establish such an important fact, in the face of Bailey's other testimony with respect to his procurement of the original patent. It is true that the duplicate "Bailey's original model" contains somewhat less than an inch of end play, but this is effected, to a certain extent at least, by the employment of leather washers, apparently superfluous in number and of unusual thickness, in the screw connection between the stock of the hydrant proper and the branch of the water-main—indeed, it is stated by Bailey himself that when the metal parts are screwed together without leather washers the space left for end play of the casting between its stock and the bead on the body of the hydrant is only $\frac{3}{32}$ of an inch.

But, admitting that his testimony with regard to the Patent-Office model should be taken for all that can be claimed for it, there is nothing to show that Bailey did not secure to himself all of which he intended to claim the monopoly of manufacturing and using. His letters to his attorneys, Munn & Co., were also burned, and there is no attempt to show by parol the instructions contained in them. Bailey simply says that his recollection is that he wrote them about it, "giving them my idea of it, some time previous—I think a month—to the forwarding to them of the specifications." There is no evidence from the office of Munn & Co. as to what their instructions were, or whether the model sent to them contained the up-and-down movement or not. We can only say with respect to this branch of the case that, if the patentee intended to claim a loose casing around the hydarnt, he would, in all probability, have so instructed his solicitors, and if he had done this it is incredible that they should have so completely neglected his instructions in this important particular, and that when he signed the specifications he should have failed to notice the omission of the principal feature of his invention, and that he should have held possession of the patent for eight years without discovering the defect. He testifies that he read the specification which he executed and sent to Munn & Co., September 7, 1867, before he signed and swore to it; that he received his patent within two or three days after its issue, upon March 10, 1868, and then read it, but did not examine the drawings because he did not consider them an important part of his patent. It

was not until eight years afterwards, when he saw hydrants made by the plaintiffs in use in Saginaw, that he recollected that his own device contained a perpendicular movement embodied in a subsequent patent granted to Race & Mathews.

1017 There is also evidence that when Race & Mathews applied for their patent in December, 1868, they were informed by the examiner that a rejection was declared with reference to Bailey's hydrant, the model of which showed the whole invention of the loose casing claimed by Race & Mathews, but the examiner who wrote this letter is dead, and the letter itself is wholly inadmissible as evidence. The history of the reissue is substantially this: In 1875 Bailey, being at Saginaw, Michigan, where hydrants made by the plaintiffs were in use, and learning that the city had been threatened with prosecution by R. D. Wood & Co., the present owners of the Race & Mathews' patent and the real defendants in this case, returned home and wrote to the plaintiffs that Mathews had no patent on a loose case, but that he, Bailey, had one patented in 1868, saying: "If you will look up this matter and satisfy yourselves that my claim is good I will sell to you, or go in with you to make Mr. Mathews stop his noise." Soon after, at their request, he sent his patent to the plaintiffs, who submitted it to their counsel in Cleveland, Messrs. Leggett & Co. These gentlemen, seeing the defect in the specifications and drawing, wrote to the Patent Office, and upon receiving a reply advised and obtained a reissue, with new specifications and drawings. The patentee, Bailey, seems to have had nothing to do with the matter of procuring the reissue beyond signing and swearing to the application after it had been prepared and sent to him for that purpose by the attorneys who were acting for the plaintiffs.

In the meantime, and before this reissue was obtained, a loose casing similar to the casing C described in the reissue had gone into extensive use throughout the country. In the year 1867, and more than six months before Bailey filed his application for the original patent, the Niagara Manufacturing Company, of Lockport, New York, was engaged in manufacturing and selling hydrants provided with an outside casing having an end play, and apparently embracing the very invention claimed in the reissue. This company, it appears from its books, sold during the year 1867 516 hydrants embodying this device, and of these 367 were sold before the date of Bailey's application. In the summer of 1868 the company failed, and for about a year thereafter the business was carried on in their shop by one of their creditors, and again for about a year longer by Samuel R. C. Mathews in the city of Lockport, making in all four years of such manufacture up to the spring of 1870. Meantime, in November, 1869, Race & Mathews obtained a patent far an improvement in hydrants, which embraced the same invention of an outside case with an end play, and from the spring of 1870 down to this time the manufacture of such hydrants has been carried on by Mathews, in copartnership with R. D. Wood & Co., at Philadelphia. Some eight or nine thousand of these hydrants were manufactured by them up to the date of the reissue of the Bailey patent, and

since then, up to the beginning of this suit, about twelve or fourteen thousand more.

1018 In November, 1867, Bailey obtained permission from the common council of the city of Lockport to put in one of his new patent hydrants, which was subsequently taken up. Between this time and August 16, 1869, four or five more of these hydrants were made by Bailey, and these, with the one first mentioned, were all which were even manufactured by him, or by any one with whom he has been connected in business.

Under all circumstances of this case, and conceding that Bailey was the first inventor of the loose casing, which is the main subject to this suit, it seems to us that his omission for this period of eight years to obtain a correction of his patent operated as a dedication to the public of all which was not claimed in the original. It would ill become a court of equity to incline its ear to the prayer of one who has been guilty of such gross laches, and is now seeking to set up a practically abandoned claim to the prejudice of others, who, deceived by his silence and apparent acquiescence, have introduced his device into many of the leading cities of the country.

The language of Mr. Justice Bradley, in delivering the opinion of the Supreme Court in Miller *v.* Brass Co., 104 U. S., 350, is exactly pertinent to this case:

"But it must be remembered that the claim of a specific device or combination and an omission to claim other devices or combinations apparent on the face of the patent are in law a dedication to the public of that which is not claimed. It is a declaration that that which is not claimed is either not th epatentee's invention or, if his, he dedicates it to the public. The legal effect of a patent cannot be revoked unless the patentee surrenders it and proves that the specification was framed by real inadvertence, accident, or mistake, without any fraudulent or deceptive intention on his part, and this should be done with all due diligence and speed. * * * It will not do for the patentee to wait until other inventors have produced new forms of improvement, and then, with a new light thus acquired, under pretense of inadvertence and mistake, apply for such an enlargement of his claim as to make it embrace these new forms."

If this language may be used with reference to devices or combinations apparent upon the face of the patent, with much greater force may it be applied to a claim which was not even suggested in the original patent or in the drawing annexed thereto, and was only shown by a model preserved in the archives of the Patent Office, the existence of which could only be learned by a search instituted for that purpose.

The third claim of the reissue only remains to be considered. This is for a "combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown." It is substantially a restatement, in somewhat more specific language, of the second claim of the original patent. We have already expressed the opinion that the invention claimed in the original patent was that of a cylinder-valve operating in a suitable case in connection with a waste-water

valve. If this be the proper construction, then defendants are not guilty of an infringement, inasmuch as they make use
1019 of a puppet-valve in place of a cylinder valve, B, unless the puppet-valve can be treated as the equivalent of the cylinder valve B; but if the two valves be treated as equivalents for each other—and we are inclined to think they ought to be—then the combination is destitute of novelty, for in all the hydrants exhibited there is an upright stock, A; hydrant-tube, B; a horizontal section, B; a valve for turning off and on the water; a stuffing-box, H, and a loose casing for protecting the hydrant from the surrounding earth. In the New York hydrant it is a mere wooden box covering the entire hydrant. In the Race & Mathews patent of 1858 it is a tube loosely inclosing the hydrant tube, but held at the top by an overlapping flange. In view of the opinion we have already expressed regarding the first claim, we think the patentee should be confined, in the construction of this claim, to such a loose casing as is exhibited in the drawing attached to the original patent, viz., one wherein the end play is confined to an overlapping flange; and, thus interpreted, the claim is anticipated by the Race & Mathews patent of 1858. It results that the bill must be dismissed.

HENRY B. BROWN.

1020 *Order Allowing Claim of Appeal, and for a Deposit.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court room, in the city of Detroit, on Wednesday, the thirty-first day of December, in the year one thousand eight hundred and eighty-four.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

Now come the said plaintiffs, by E. J. Hill, of counsel, and claim an appeal to the Supreme Court of the United States from the final decree heretofore entered herein.

Thereupon said claim of appeal is by the court now here allowed, and the amount of bond on appeal is fixed at $500.00, with leave to the plaintiffs to deposit with the clerk of this court the sum of $500.00 in lieu of filing a bond.

1021 *Order that all Exhibits be sent to Philadelphia.*

At a session of the circuit court of the United States for the eastern district of Michigan, continued and held, pursuant to adjournment, at the district court room, in the city of Detroit, on Thursday, the fifteenth day of January, in the year one thousand eight hundred and eighty-five.

Present: The Honorable Henry B. Brown, district judge.

JAMES FLOWER *et al.*
vs.
THE CITY OF DETROIT *et al.* } In Equity.

In this cause, on motion of plaintiffs' counsel, it is ordered that all the original exhibits in this cause, mechanical and paper, be sent to the clerk of the circuit court of the United States at Philadelphia; that wherever said paper exhibits are attached to depositions and cannot be removed without mutilating the same, said depositions with said attached exhibits be sent together, to be returned upon the final disposition of the causes in Philadelphia.

1022 By the Honorable Henry B. Brown, one of the judges of the circuit court of the United States for the eastern district of Michigan.

To the City of Detroit, Fire Commission of the City of Detroit—Benjamin Vernor, President thereof—and the Board of Water Commissioners of the City of Detroit:

Whereas James Flower, Thomas Flower, and George Flower have lately appealed to the Supreme Court of the United States from a decree lately rendered in the circuit court of the United States for the eastern district of Michigan, made in favor of you, the said City of Detroit, and the said auxiliary corporations thereto, and have filed the security required by law, you are, therefore, hereby cited to appear before the said Supreme Court, *of* the city of Washington, on the twelfth day of October, A. D. 1885, to do and receive what may appertain to justice to be done in the premises.

Given under my hand, at the city of Detroit, in the eastern district of Michigan, in the sixth circuit, the 31st day of December, in the year of our Lord one thousand eight hundred and eighty-four.

HENRY B. BROWN,
Dist. Judge.

1023 EASTERN DISTRICT OF MICHIGAN, *ss:*

John Graves, of Detroit, Wayne county, in said district, being duly sworn, says that he served the citation above on Henry M. Duffield, solicitor for the defendants, by leaving a copy thereof at the office of said Henry M. Duffield with the person then in charge, said Duffield not being in his office, on Saturday, the third day of January, A. D. 1885, at about the hour of 4 o'clock p. m.

JNO. GRAVES.

Sworn to and subscribed before me this 6th day of January, A. D. 1885.

——— ———.

[Endorsed:] 2872. James Flower *et al. v.* City of Detroit *et al.* Citation & proof of service. Filed Jan. 6, 1885. Walter S. Harsha, clerk.

1024 THE UNITED STATES OF AMERICA:

The Circuit Court of the United States for the Eastern District of Michigan.

I, Walter S. Harsha, clerk of the circuit court of the United States for the eastern district of Michigan, do hereby certify and return to the claim of appeal of the plaintiffs in the case of James Flower *et al vs.* The City of Detroit *et al.*, No. 2872, in said court, in equity, that the above and foregoing is a true copy of the record and all proceedings had and entered in said cause; that I have compared the same with the original in my office, and it is a true and correct transcript therefrom and of the whole thereof. I further certify that the said plaintiffs and appellants have duly deposited with me as clerk the sum of five hundred dollars by order of court as security on appeal in lieu of the usual bond on appeal.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at Detroit, in said district, this twenty-seventh day of January, in the year of our Lord one thousand eight hundred and eighty-five, and of the Independence of the United States of America the one hundred and ninth.

[Seal of the Circuit Court, Eastern District of Michigan.]

WALTER S. HARSHA, *Clerk.*

1025 In the Supreme Court of the United States, to the October Term, A. D. 1885. In Equity.

JAMES FLOWER, THOMAS FLOWER, and GEORGE FLOWER, Appellants,

vs.

THE CITY OF DETROIT, FIRE COMMISSION OF THE CITY OF DETROIT, Benjamin Vernor, President thereof, and The Board of Water Commissioners of the City of Detroit, Appellees.

Appeal from the circuit court of the United States for the eastern district of Michigan.

And now come the appellants above named, by Edward J. Hill, their solicitor, and say that in the record and proceedings hereinbefore set forth there is manifest error in this—that is to say, the court erred in rendering a decree dismissing the complainants' bill of complaint for want of equity, because they say—

First. That the letters patent, No. 75344, issued March 10,
1026 1868, and reissued, No. 6990, March 14, 1876, to Thomas R. Bailey, Jr., and assigned by him to the complainants March 30, 1876, constitute an unimpeachable title, *prima facie*, to the improvement in hydrants therein described.

Second. That the proofs show that the said Thomas R. Bailey, Jr., was the original and first inventor of the devices therein described.

Third. That the proofs show that the defendants have infringed the said letters patent, as charged in the complainants' bill of complaint.

Fourth. That the complainants were entitled upon said proofs to a decree for an accounting, etc., according to the prayer of said bill of complaint.

Fifth. That the court erred in other matters, both in law and in fact, as more fully and at large appears in and by the opinion of said court as contained in said record, reference to which is hereby made.

And the said James Flower, Thomas Flower, and George Flower, appellants aforesaid, pray that the decree aforesaid may be reversed, annulled, and altogether held for naught, and that they may be restored to all things which they have lost by occasion of said decree.

And as in duty bound they will ever pray, etc.

JAMES FLOWER,
THOMAS FLOWER, AND
GEORGE FLOWER,
By EDWARD J. HILL,
Their Solicitor, Room 87, 163 *Randolph St., Chicago, Ill.*

EDWARD J. HILL,
Of Counsel.

1027 [Endorsed:] Transcript of stenographer's notes. In the Supreme Court of the United States, to Oct. term, A. D. 1885. James Flower *et al.*, appellants, *vs.* The City of Detroit, appellees. Assignment of errors. Edward J. Hill, sol'r for appellants; Edward J. Hill, of counsel, room 87 Metropolitan block, 163 Randolph St., Chicago.

Endorsed on cover: E. Michigan C. C. U. S. No. 494. James Flower, Thomas Flower, & George Flower, appellants, *vs.* The City of Detroit, The Fire Commission of the City of Detroit, Benjamin Vernon, president thereof, and The Board of Water Commissioners of the City of Detroit. Filed 4th February, 1885.

27-503

NOV 2 1887

IN THE

SUPREME COURT OF THE UNITED STATES,

No. 203.

OCTOBER TERM, 1887.

JAMES FLOWER, THOMAS FLOWER AND GEORGE FLOWER,
Appellants,
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF SAID CITY AND ITS PRESIDENT, AND THE BOARD OF WATER COMMISSIONERS OF SAID CITY,
Appellees.

Appeal from the Circuit Court of the United States for the Eastern District of Michigan.

Brief for the Appellants.

EDWARD J. HILL,
Solicitor for Appellants.

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1887.

Fourth. That the complainants were entitled upon said proofs to a decree for an accounting, etc., according to the prayer of said bill of complaint.

Fifth. That the court erred in other matters, both in law and in fact, as more fully and at large appears in and by the opinion of said court as contained in said record, reference to which is hereby made.

And the said James Flower, Thomas Flower, and George Flower, appellants aforesaid, pray that the decree aforesaid may be reversed, annulled, and altogether held for naught, and that they may be restored to all things which they have lost by occasion of said decree.

And as in duty bound they will ever pray, etc.

JAMES FLOWER,
THOMAS FLOWER, AND
GEORGE FLOWER,
By EDWARD J. HILL,
Their Solicitor, Room 87, 163 *Randolph St., Chicago, Ill.*

EDWARD J. HILL,
Of Counsel.

1027 [Endorsed:] Transcript of stenographer's notes. In the Supreme Court of the United States, to Oct. term, A. D. 1885. James Flower *et al.*, appellants, *vs.* The City of Detroit, appellees. Assignment of errors. Edward J. Hill, sol'r for appellants; Edward J. Hill, of counsel, room 87 Metropolitan block, 163 Randolph St., Chicago.

Endorsed on cover: E. Michigan C. C. U. S. No. 494. James Flower, Thomas Flower, & George Flower, appellants, *vs.* The City of Detroit, The Fire Commission of the City of Detroit, Benjamin Vernon, president thereof, and The Board of Water Commissioners of the City of Detroit. Filed 4th February, 1885.

27-563

NOV 2 1887

IN THE

SUPREME COURT OF THE UNITED STATES,

No. 203.

OCTOBER TERM, 1887.

JAMES FLOWER, THOMAS FLOWER AND GEORGE FLOWER,
Appellants,
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF SAID CITY AND ITS PRESIDENT, AND THE BOARD OF WATER COMMISSIONERS OF SAID CITY,
Appellees.

Appeal from the Circuit Court of the United States for the Eastern District of Michigan.

Brief for the Appellants.

EDWARD J. HILL,
Solicitor for Appellants.

CHICAGO:
PRINTED BY THE CHICAGO LEGAL NEWS COMPANY, 87 CLARK STREET
1887.

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IN THE

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1887.

JAMES FLOWER, THOMAS FLOWER AND GEORGE FLOWER,
Appellants,
vs.
THE CITY OF DETROIT, THE FIRE COMMISSION OF SAID CITY AND ITS PRESIDENT, AND THE BOARD OF WATER COMMISSIONERS OF SAID CITY,
Appellees.

Appeal from the Circuit Court of the United States for the Eastern District of Michigan.

BRIEF FOR THE APPELLANTS.

I. THE CASE.

1. STATEMENT.
2. THE BILL.
3. THE ANSWERS AND REPLICATION.
4. THE PARTIES.
   (*a*) *Plaintiffs and Appellants.*
   (*b*) *Defendants and Appellees, nominal and real.*
5. THE DECREE AND THE APPEAL.

1. Statement.

This is an appeal from a decree of the Circuit Court of the United States, for the Eastern District of Michigan, dismissing the bill for want of equity, which was filed October 3, 1883, by the appellants, as assignees of Thomas R. Bailey, Jr., to restrain the infringement of reissued letters patent, No. 6,990, issued to him March 14, 1876, of the original letters patent No. 75,344 issued to the patentee March 10, 1868, for an improvement in hydrants, ever since then known in the market as the "Loose cased hydrant."

2. The Bill.

The bill states the issuance of the original letters; it alleges a mistake therein through inadvertence of the patentee's solicitors; that the drawing, owing to this mistake, was incompatible with the written description and contradictory to the patent office model; and that this reissue was procured to correct this mistake.

3. The Answers and Replication.

The defendants answered the bill.

The defendant's counsel thus formulated the defenses set up and relied on.

"*First.*—The reissue sued upon is not for the same invention as was the original patent, but is for an entirely different invention, not described, shown or suggested in the original patent.

Defendants' Answer, Paragraphs 9, 10 and 11, pp. 16 and 17.

Second.—The reissue sued upon was not taken until eight years after the original patent, and was procured with new and enlarged claims for the purpose of covering structures which had meantime been put into extensive use by these defendants and others, and which had not been embraced by any claims of the original patent.

Defendants' Answer, Paragraphs 12, 13, 14 and 15, pp. 18–24.

Third.—The first claim of the reissue sued upon, which alone can be construed to embrace anything contained in the defendants' structures complained of, is substantially the same in terms, and identically the same in meaning, as the claim of another patent (No. 96,959), which has already been held by the Supreme Court of the United States to have been anticipated by certain structures existing long prior to both patents, and incontrovertibly proved in the present case.

Exhibit Supreme Court Decision, pp. 335–339.

Defendants' Answer, Paragraph 20, pp. 28, 29.

The Parties.

Fourth.—The invention attempted to be claimed and patented in and by the reissue sued upon, had been originated, reduced to practice and put into public use by others before the same had ever been conceived by the plaintiffs' assignor.

Defendants' Answer, Paragraph 20, pp. 28, 29.

Amendment to Defendants' Answer, Paragraphs 21, 22, 23, pp. 34, 35.

Fifth.—The defendants had used the structures now complained of as infringements, and had extensively added to the same from time to time for upwards of eleven years before this suit was brought; and during at least nine years of this time such use was fully known by the plaintiffs, who did nothing meanwhile to enforce their alleged rights, and who, therefore, by reason of laches, can now have no standing in a court of equity.

Defendants' Answer, Paragraphs 16, 17, 18, 19, pp. 24–28."

A general replication was filed.

4. The Parties.

(*a*) *Plaintiffs and Appellants.*

The plaintiffs and appellants composed the firm of James Flower & Brothers, of Detroit, Mich., machinists and manufacturers. They commenced the manufacture of hydrants in 1873, first making taper-joint hydrants, with external cases, and after their purchase of the Bailey patent, in 1876, competing with R. D. Wood & Co., of Philadelphia, and others, in the manufacture and sale of the loose cased hydrants like those in controversy.

Since the appeal was taken, James Flower has died; his brothers, as his executors and surviving partners, have been made parties to this appeal, in his stead, under rule 15.

(*b*) *Defendants and Appellees.*

The City of Detroit was made the sole defendant to the original bill, and appeared and demurred for want of proper parties defendant, which was admitted and by an amended bill filed Nov. 30, 1883, the auxiliary corporations, The Fire Commission, its President and the Board of Water Commissioners of the city, were brought in.

Messrs. R. D. Wood & Co. composed of those named as plaintiffs in the record of the case of Mathews v. Machine Company reported 105 U. S. 54, were conceded to be the manufacturers and vendors to the defendants of the hydrants complained of, and for the reason that they had

agreed to indemnify their vendees and to defend such suits against them, that firm procured their own counsel, MR. GEORGE L. ROBERTS, to appear with the city solicitor, MR. HENRY M. DUFFIELD, as counsel.

MR. ROBERTS conducted the defense and the court below recognized and characterized "R. D. Wood & Co., present owners of the Race & Mathews patent" as "the real defendants in this case."

Transcript, pp. 71, 408, 657.

5. THE DECREE AND THE APPEAL.

That court sustained the position of their learned counsel, that reissued patent No. 6,990 is void because it is not for the same invention as that described and claimed in the original letters, and for this reason dismissed the bill for want of equity.

From the decree dismissing the bill this appeal was taken, and we have brought up the record.

II. ASSIGNMENT OF ERRORS.

Upon this record we have assigned the following errors:

"The court erred in rendering a decree dismissing the complainants' bill of complaint for want of equity, because we say—

First. That the letters patent, No. 75,344, issued March 10, 1868, and reissued No. 6,990 March 14, 1876, to Thomas R. Bailey Jr., and assigned by him to the complainants March 30, 1876, constitute an unimpeachable title, *prima facie*, to the improvement in hydrants therein described.

Second. That the proofs show that the said Thomas R. Bailey, Jr., was the original and first inventor of the devices therein described.

Third. That the proofs show that the defendants have infringed the said letters patent as charged in the complainants' bill of complaint.

Fourth. That the complainants were entitled, upon said proofs, to a decree for an accounting, etc., according to the prayer of said bill of complaint.

Fifth. That the court erred in other matters, both in law and in fact, as more fully and at large appears in and by the opinion of said court contained in said record, reference whereto is hereby made.

Transcript, pp. 661, 662.

III. THE ARGUMENT.

1. THE PLAINTIFFS' TITLE VALID.
   - (a) *Comparison of the original and the amended drawings.*
   - (b) *Comparison of the original and revised written descriptions.*
   - (c) *Comparison of the original and revised claims.*
   - (d) *The mistake which gave jurisdiction to the commissioner and opened the record before him.*
   - (e) *The estoppels.*
2. THOMAS R. BAILEY, JR., THE ORIGINAL AND FIRST INVENTOR.
3. THE INFRINGEMENT.
4. ANTICIPATION.
5. LACHES.

The consideration of the first assignment of error involves a comparison of the reissued or amended patent with the original. We will first compare the drawings; second, the written descriptions, and third, the claims.

(a) *The drawings.*

At the threshold of this comparison, we behold a slight change or amendment in the drawing by the reissue.

Compare these two drawings, which we here reproduce. The descriptions call for this casing, viz.:

No. 75,344.	No. 6,990.
"C is a loose casing."	"C is a loose movable casing"

This casing can not be found in the original drawing, if that drawing is to be servilely followed, for the casing is there represented as almost, if not quite, in contact with the bead, *a*, on the tube above it. This casing is clearly shown in the amended drawing.

Any one familiar with a lorgnette or a telescope, if shown a picture of either shut up, would not need to be informed that it was composed of loose movable parts.

So the witness, McCue, who was familiar with the Bailey hydrant, testified on looking at these drawings:

"Those are both the Bailey hydrants (referring to patent No. 75,344, the erroneous drawing) This one represents it a little more in regard to the outside case as I saw it on the ground yesterday."
Transcript, p. 175.

So the witness, Rice, said, when his attention was called to this difference:

"Well, there is an apparent difference between the drawing and the model. I don't think there was intended to be any difference by the draughtsman. It was a mere mistake in getting it a little closer than was intended. For all practical purposes the drawing is sufficient. There is a small space there, which, if it had been drawn to a larger scale, would have shown a greater space, but which is immaterial for manufacturing the machines. It is really what you might call 'a clerical error.'"
Id., 387, 388.

(b) *The written descriptions.*

To facilitate comparison between the original and the amendment, their specifications are here printed side by side with the differences between them noted by italics.

T. R. Bailey Jr.
Hydrant.

No 75344 Patented Mar. 10, 1868

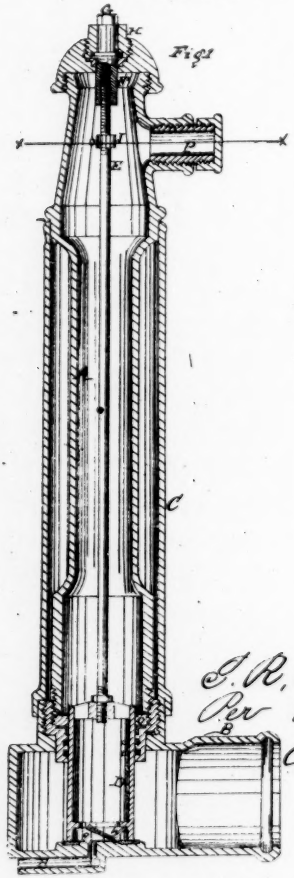
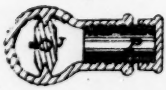


Fig 2.



T. R. Bailey Jr
Per Munn & Co
Attorneys
Inventor

Witnesses
Theo Tusche
W Trewin

T. R. BAILEY, Jr.

HYDRANTS.

No. 6,990. Reissued March 14, 1876.

Fig 1 —

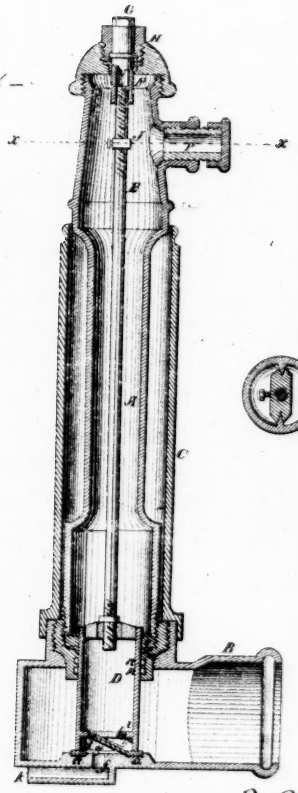


Fig 2 —

WITNESSES

E. J. Sottingham

Albert W. Wright

INVENTOR

T. R. Bailey Jr.

B. Leggett & Leggett Attorneys

Original and reissue; written descriptions.

ORIGINAL PATENT No. 75,344.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the County of Niagara, and State of New York, have invented a new and improved hydrant fire-plug; and I do hereby declare *that* the following *is* a full, clear and exact description thereof, which will enable *those* skilled in the art to make and use the same, reference being had to the accompanying drawings *forming* part of this specification.

This invention relates to *a new and improved method of constructing* fire-plugs or hydrants; *and the invention consists in operating a cylinder-valve in a suitable case, and in the arrangement and combination of parts connected therewith, as hereinafter described.*

Figure 1 represents a longitudinal central section of *the* hydrant *showing the parts of which it is composed and the manner of their arrangement.* Fig. 2 *is* a cross-section of *Fig. 1* through *the* line x x.

Similar letters of reference indicate corresponding parts.

REISSUED PATENT No. 6,990.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the County of Niagara, and State of New York, have invented a new and improved hydrant fire-plug; and I do hereby declare the following *to be* a full, clear and exact description thereof, which will enable *others* skilled in the art *to which my invention relates* to make and use the same, reference being had to the accompanying drawing *which forms a* part of this specification.

This invention relates to *improvements in the construction of* fire-plugs or hydrants.

In the drawing.

Figure 1 represents a longitudinal central section of *a* hydrant *according to my invention;*

Fig. 2, a cross-section of *the same* through lines x x *of Fig. 1.*

My invention consists in the following parts and combinations as hereinafter specified and claimed, wherein:—

Original and reissue; written descriptions.

ORIGINAL PATENT NO. 75,344.

A represents the hydrant tube from which *the* water is discharged. B is the horizontal section which is connected with the water-main, and which forms the valve-chamber.

C is a loose casing around the hydrant-tube, *for protecting the tube from dirt, etc.* D is the cylinder-valve, *which has* its seat at its lower end, *on* elastic *or leather* packing, secured in a groove, *as seen in the drawing* at a. E is a rod having a screw thread on its upper end, by which the valve is operated. F is a sleeve-nut, *which engages* with the screw on the rod, *raising* and lowering *it* as the nut is turned. This nut is turned by a wrench on the head G.

The sleeve-nut is *secured* in the cap of the hydrant by a collar, and packing under the hollow cylinder stuffing-box H, *as seen in the drawing.* J is a yoke, which is attached to the rod E by a set-screw, and *which* is *secured* in the tube A, and prevented from turning, as it moves up and down, by projecting lugs, as *seen in* Fig. 2; *and* it will be *seen* that the arrangement is such that the rod and valve may be raised and lowered

REISSUED PATENT NO. 6,990.

A represents the hydrant-tube from which water is discharged. B is the horizontal section which is connected with the water-main, and which *may* form the valve-chamber.

C is a loose *movable* casing around the hydrant-tube.

D is the cylinder-valve, *having* its seat at its lower end *upon suitable* elastic packing, secured in a groove, as *shown* at a. E is a rod, having a screw thread on its upper end by which the valve is operated. F is a sleeve-nut *engaged* with the screw-*nut* on the rod *E, lifting* and lowering *said rod* as the nut is turned *one way or another.* This nut is turned by a wrench *or crank, or other suitable device* on the head G.

The sleeve-nut is *screwed* in the cap of the hydrant by a collar, and packing under the hollow cylinder stuffing-box H. J is a yoke which is attached to the rod E by a set-screw, *or its equivalent,* and *it* is *screwed* in the tube A, and prevented from turning, as it moves up and down, by projecting lugs, as *shown in detail at* Fig. 2. It will be *noticed* that the arrangement is such that the rod and valve may be raised and

Original and reissue; written descriptions.

ORIGINAL PATENT No. 75,344.	REISSUED PATENT No. 6,990.
without being rotated. *This secures* a uniform and perfect bearing of the valve on its seat, the packing **a** remaining undisturbed.	lowered without being rotated, *thus securing* a uniform and perfect bearing of the valve on its seat, the packing **a** remaining undisturbed.
Provision is made for the discharge of the waste water by an orifice beneath the valve **D**, *marked* **f**, which orifice is opened and closed by a valve *marked* **g**, *as seen in the drawing.* **h** *is* a wing *on* the top of this valve.	Provision is made for the discharge of the waste water by an orifice **f** beneath the valve **D**, which orifice is opened and closed by a valve **g**. A wing **h** *is provided upon* the top of this valve.
As the cylinder valve **D** descends the angular flange **i** on its inside, *strikes* the wing **h**, *and* raises the valve as *seen* in the drawing, *thus allowing* any water which may remain in the hydrant to escape through the orifice **f** and aperture **k**. *It will thus be seen that no water will be left in the hydrant to freeze in cold weather.*	As the cylinder valve **D** descends, the angular flange **i** on its inside *striking* the wing **h**, raises the valve as *shown* in the drawing, *and allows* any water which may remain in the hydrant to escape *down* through the orifice **f** and aperture *K*, *thus preventing any retention of water above the freezing level.*
The tube *A* is secured to the horizontal section **B** by a ring nut **m**, which contains recesses for packing rings around the valve, as *seen* at **n** *n*. Packing *around* the valve is also secured by another ring nut **o**, and also under the end of the tube **A** as *seen* in the drawing.	The tube *A'* is secured to the horizontal section **B** by a ring nut **m**, which contains recesses for packing rings around the valve as *shown* at **n**. Packing *about* the valve is also secured by another ring nut, **o**, and also under the end of the tube **A** as *shown* in the drawings.
P represents the discharge-pipe with a screw for the attachment of the *hose*, and a	**P** represents the discharge-pipe with a screw for the attachment of the *base*, and a

ORIGINAL PATENT No. 75,344.

cap-piece for covering the pipe when the hydrant is not in use.

REISSUED PATENT No. 6,990.

cap-piece for covering the pipe when the hydrant is not in use.

It will be observed that the casing C loosely rests upon the main B or upon a branch projecting upward from the same. This casing extends upward, enveloping the main portion of the water-pipe A,—at least that portion which is subterranean. Said casing extends upward and fits loosely about the plug or hydrant at the portion A'. *Above the upper terminus of the casing C is provided the bead a upon the hydrant proper. Sufficient space is left between the bead a and the upper terminus of the casing C to permit of sufficient up-and-down play of the said casing C for the purpose which will hereafter more fully appear. This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base.*

The main function of the casing C is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug. This process of freezing causes the surrounding earth, by its expansion, to lift or upheave, and thus be liable to derange the hydrant or plug. This upheaval or movement is received

ORIGINAL PATENT NO. 75,344.	REISSUED PATENT NO. 6,990.
	by the casing C, which, by its capability of sliding loosely up and down, will accommodate the upheaval of the earth above mentioned, without any liability to derange the plug or hydrant. This is the chief function of the casing C, although it likewise serves the purpose of protection to the water pipe A.

(c) *Claims of Original and Reissue Compared.*

Having thus described my invention, I claim *as new and desire to secure by Letters Patent—*	*What* I claim *is—*
1. A hydrant or *water* plug, *constructed substantially as shown and described,—that is to say, with the parts* A *and* B *connected together as shown,*	1. *In combination with a hydrant or fire plug, a detached and surrounding casing C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper substantially as shown.*
and with *a* cylinder-valve and *a* waste-*water* valve connected and operated in combination, substantially as herein *specified.*	2. In combination with a a hydrant or *fire*-plug *pipe* A, *the supply pipe* B, *and* cylinder-valve and waste-valve, connected and operated substantially as herein *shown and described.*
2. *The arrangement of the parts* A B, valve D, case C,	3. *The combination of the hydrant or fire plug pipe* A

Claims compared.

ORIGINAL PATENT No. 75,344.	REISSUED PATENT No. 6,990.
and stuffing box **H**, as *herein described*, for the purpose *specified*.	*supply pipe* **B**, valve **D**, *casing* **C**, and stuffing box **H**, *substantially* as *and* for the purpose *shown*.
T. R. Bailey, Jr.	*Thomas* R. Bailey, Jr.

It results, we contend, from this comparison, that there was a mistake, an accidental showing in the original drawing.

As the law inhibits the amendment of the drawings except by the model, the conclusive presumption here is that this accidental showing has been corrected so as to conform the drawing to the model.

"It would be unreasonable to prevent or refuse the correction of such errors so as not to mislead nor cause contradictions; because after all it is the specification which governs and the drawings merely illustrate."

Hogg v. *Emerson*, 11 How. 587, p. 606.

The models and drawings are proper to be resorted to for clearer information.

Hogg v. *Emerson*, 6 How. p. 485.

The law required of Bailey in 1867 when he applied for this patent: 1, the written description; 2, the drawings; and 3, a model of his invention.

§ 6, Act 1836.

The model passed through the fire in the patent office, Sept. 24, 1877, and was nearly destroyed. We supplied its place with another model, which was made at the same time as the original by the inventor himself.

See Testimony of Thomas R. Bailey,
Transcript, pp. 67 68.
Testimony of James E. Ferguson,
Transcript, pp. 116, 117.
Testimony of George Bailey.
Transcript, pp. 150, 151.
Testimony of James Clapham,
Transcript, pp. 156, 157.
Testimony of John McCue,
Transcript, pp. 173, 174.
Testimony of James Flower,
Transcript, pp. 121, 122.
Testimony of Edwin Saxton,
Transcript, pp. 179, 180.
Testimony of Clarence E. Curtis,
Transcript, pp. 184, 185.

The Claims.

Testimony of Frank A. Spear,
Transcript, pp. 186, 187.
Testimony of George T. Smallwood,
Transcript, pp. 187, 188.
Testimony of Alexander Mahon,
Transcript, pp. 193, 194.

See Exhibit Bailey Original Model.

This exhibit we insist is supported by the most conclusive testimony as being the exact counter-part of the patent office model, and in view of the loss of that model it must in this litigation take the place of the patent office model.

See *Hogg* v. *Emerson*, 6 How. 473,
S. C., 11 How. 587.

To determine whether the commissioner exceeded his jurisdiction in granting the reissue, we ask this court to look at the whole record which the commissioner had before him. This includes the patent office model as well as the drawing and the written description.

Three witnesses, *Thomas R. Bailey, James E. Ferguson* and *George Bailey*, testify to the making of the two models and identify this as one of them.

Three more, *Clapham, McCue* and *Saxton* testify to have seen this one in Bailey's possession in 1866 or 1867.

Bailey and James Flower trace its transfer to James Flower, without alteration; Smallwood compares it with what is left of the patent office model and finds the parts saved to be exact counter-parts of the corresponding parts of the Bailey model.

The fact that Bailey made a hydrant in 1867 before he applied for a patent, and that the same is precisely like the model except in size (see testimony of Clarence E. Curtis, and Exhibit Bailey hydrant) goes far to establish the model as a correct representation of his hydrant.

Applied to the device described and correctly shown by the model, and the amended drawing, the claims of the original and those of the reissue are identical in meaning; they differ only in phraseology.

Turning to the original application:

Transcript, pp. 593 to 597.

We learn from this, that Bailey made the first claim, and then two other claims thus:

"Second. In combination with the parts A, B, and valve D, the case C substantially as and for the purpose described.

The Claims.

Third. The stuffing box H in the cap of the hydrant, substantially as set forth."

Transcript, p. 595.

At the instance of the examiner those two claims were amended and put into one thus:

"Second. The arrangement of the parts A, B, valve D, case C, and stuffing box H, as herein described, for the purpose specified."

Transcript, p. 596.

This exactly covered the invention. The examiner then said, "the present is regarded as merely an arbitrary claim for the juxtaposition of parts. The hydrant proper [A], the main [B], the external case [C], and the plug [D], are essentials in most hydrants. The packing [H] through which the rod works, has no necessary relation to these," etc. And with this understanding the patent was received.

But this *arrangement*, this arbitrary claim for the juxtaposition of parts, covered the general construction of the outside casing, the cylindrical part of the body of the hydrant on which the case slides, and the bead for limiting the motion of the case; the general features of Bailey's invention.

Now as A, B, D and H compose the hydrant, is not the first claim of the reissue for this identical *arrangement*—a mere arbitrary claim for the juxtaposition of parts? Read it:

"In combination with a hydrant (= to A, B, D and H,) the detached and surrounding casing C; said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown."

This is not a claim for the general combination of A, B, D, H and C, but of this combination in which C is limited to a particular *arrangement*, the means to an end, for a result or effect substantially as shown.

Case v. *Brown*, 2 Wall. 320.

Then the first claim of the reissue as it now stands, is plainly identical with the second claim of the original.

Winans v. *N. Y. & E. R. R. Co.*, 21 How. 88.
Forbush v. *Cook*, 2 Fish. 668.

The claim is for the hydrant itself constructed and arranged as described in his patent.

Winans v. *The Schenectady & Troy R. R. Co.*, 2 Blatch. 279.

The Claims.

Winans' claim was for the "described manner of arranging and connecting the eight wheels which constitute the two bearing carriages with a railroad car, so as to accomplish the end proposed by the means set forth." *Id.* Of which MR. JUSTICE NELSON said:

"The claim itself explains the improvement set up by the patentee. It is the arrangement and construction and adjustment of the eight wheeled car, the car *as a whole*."

Winans v. *New York & Harlem R. R. Co.*, 4 Fish. 1.

So here Bailey confines his claim thus:

No. 75,344.	No. 6,990.
The arrangement of the parts A, B, valve D, case C, and stuffing box H, as herein described for the purpose specified.	In combination with a hydrant or fire plug [= A, B, D and H,] a detached and surrounding casing, C, said casing [illegible] adapted, etc.

None of the parts here are claimed as new.

The court below was led into an entire misapprehension of the thing for which the patent was issued. The claim is for an improved hydrant, not for the loose casing nor the cylinder valve.

Winans v. *Schenectady & Troy R. R. Co.*, 2 Blatch. 279.

But the first claim of the original is a perfect and properly limited claim. It tells exactly what Bailey had invented, and what he claimed, viz.:

"Having thus described my invention, I claim as new, and desire to secure by letters patent:

1. A hydrant or water plug, constructed substantially as shown and described, that is to say,

[1] With the parts A and B connected together as shown.

[2] And with a cylinder valve and a waste water valve connected and operated in combination, substantially as herein specified."

A and B are the two parts of the hydrant tube described; around them is a *loose* casing resting loosely upon the one part and receiving and holding the other by means of a loose joint or connection therewith; *securing* them together is the ring nut, *m*, which, by a screw joint, unites them into a continuous tube from inlet to outlet for conveying the water. Now, this manner of connecting these parts by the loose jointed case outside and the close joint made by means of the ring nut with its screw threads within, constitutes the very gist of Bailey's invention—it is the very arrangement which we have just considered.

The new combination of valves also makes up the hydrant.

The claim was susceptible of division and separation into two claims as they appear in the reissue.

The new parts are as distinctly pointed out by means of the words "*with*" "*and* with," as if separately numbered.

Tuck v. *Bramhill*, 6 Blatch. 95.
Taylor v. *Archer*, 8 Blatch. 318.
Silsby v. *Foote*, 14 How. 218.
Rubber Co v. *Goodyear*, 9 Wall. 795.
See page 15, *supra*.

The construction of the model was also proved by an entry in the records at the patent office, of which Race & Mathews had notice. This entry is proved by certificate of the commissioner of date Oct. 22, 1883, (Transcript, pp. 59–61) as follows:

"Examiner's Room, No. 96.

A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention.

T. C. CONNOLLY, *Examiner*."

Id., p. 61.

It appears in the record of the case of *Mathews* v. *Boston Machine Co.*, by certificate of the commissioner, of date March 13, 1876, and constitutes a decision of the patent office on the application of Race & Mathews for a patent for improvement in hydrants of date October 29, 1868.

Transcript, 587, 589.

Itwas communicated to them by letter from the commissioner under date of December 17, 1868.

Transcript, p. 306.

Testimony of Rufus S. Osgood, Id. p. 210.
J. A. Wiedersheim, Id. p.252.
S. R. C. Mathews, Id. p. 273.

It was originally entered upon a blank now in the file wrapper, and contents relating to letters patent No. 96,959, issued to them upon that application by the examiner, then recorded, then copied upon the letter. The record we proved by the testimony of Alexander Mahon and also exactly how this was done and the record itself by a sworn copy from the record at page 386, in volume 156, Letter Book for Dec. 1868. (Transcript, pp. 194, 196.)

1 Greenl. Ev., § 496.
Evanston v. *Gunn*, 99 U. S. 660.

"The register of the land office keeps a record of all entries and surveys, and on his official certificates, patents are issued by the government. His records are always in his control, and all entries made in them are made by himself, or by a person authorized to act for him. As the records of this office are of great importance to the country, and are kept under the official sanction of the government, their contents must always be considered as they are always received in courts of justice, as evidence of the facts stated."

Galt v. *Galloway*, 4 Peters, p. 343.

Does not the same rule apply to the entries in the records at the patent office?

The original specification was clear enough to be understood by ordinary mechanics, notwithstanding the error in the drawing, Mathews understood it, Rice understood it, McCue understood it, Pendry understood it.

Hogg v. *Emerson*, 6 How. 473.

R. D. Wood & Co.'s patentees and assignors, Race and Mathews, on first beholding a copy of the original patent in 1868, the year of its issue, discerned the true construction of this patent. Its general features are apparent at a glance, viz.:

"The general construction of the outside casing, the cylindrical part of the body of the hydrant on which the case slides, and the bead for limiting the motion of the case."

(Transcript, p. 289. Testimony of S. R. C. Mathews.)

These features were all then disclosed to them by the original patent, and the record shows that from that time to the inception of this cause, Race and Mathews and their assigns, the real appellees here, have acted upon the fact that the original patent, No. 75,344, covered the hydrant with a loose casing having end play.

But their learned counsel below argued thus:

"In the original patent, No. 75,344, it is said that '*the invention consists in operating a cylinder valve in a suitable case, and in the arrangement and combination of parts connected therewith as hereinafter described.*'

Then follows a description which is wholly concerned with the cylinder valve, the means for operating it, the mode of packing it, the arrangement of the waste water valve within it, and its combination with the ring nut by which the hydrant tube and the branch of the water main are connected together.

There is only the briefest incidental mention of the hydrant jacket or surrounding case, in these words: '*C is a loose casing around the hydrant tube for*

The Claims.

protecting the tube from dirt, etc.,' and there is not the slightest hint or intimation that this loose casing C possesses any peculiarity of construction or function which characterizes the invention described or intended to be patented.

The drawings are referred to in the specification as follows:

'*Figure* 1 *represents a longitudinal central section of the hydrant showing the parts of which it is composed and the manner of their arrangement.*'

And, upon inspection of these drawings, it appears that the part designated C is represented as a detached case or jacket surrounding the hydrant tube or stock, resting at the bottom upon an upward projection from the branch of the water main and confined at the top by a bead immediately above it on the body of the hydrant, so that the specific mention of the 'case C' in the second claim of this original patent as one among several parts of which the 'arrangement' is claimed, 'as herein described for the purpose specified,' can signify nothing else than that it is, in the language of the only description there is of it, 'a loose casing around the hydrant tube for protecting the tube from dirt, etc.,' and that its 'arrangement' is as represented in the drawings, so as to be incapable of any end play or up-and-down motion."

He here contradicts the evidence of his clients' senses as well as of his own. For in the words, *a loose casing around the hydrant tube, for protecting the tube from dirt, etc.,* the idea of a confined casing incapable of any end-play or up-and-down motion, is prohibited.

Bailey did not patent the loose case; he did not claim it. He invented, he described and he claimed *the connections*—the loose joints which this loose case makes respectively with the stock and base of the hydrant. He invented, he described and he claimed the new *arrangement* of the five parts of the hydrant and their relation to each other as a whole, which *Samuel R. C. Mathews* recognized, in 1868, on beholding the original patent, notwithstanding the defective drawing.

In 1869 *Race & Mathews* were informed of the construction of the model by the Patent Office, and they thereupon asked Bailey to disclaim this feature of the loose casing, *having end play,* because they were the inventors of it.

Transcript, p. 273.

The New York hydrant, with a loose case around it (an independent case not a part of the hydrant), having end play, had for more than twenty years before Bailey's invention, pointed out to those skilled in the art, the requisites of the end play of the loose protecting casing. Race & Mathews in August, 1860, were manufacturing and advertising hydrants having loose cases with end play.

See Lithograph Transcript, p. 200, letter press.

This lithograph, Mathews stated, was made from drawings made by himself in August, 1860, and he said that he

RACE & MATHEWS'

PATENTED JAN. 26th 1858.

FIRE HYDRANT

MANUFACTURED BY

RACE MATHEWS & CO.

LOCKPORT N.Y.

OUR FIRE HYDRANT

HAS BEEN THOROUGHLY TESTED AND PROVED TO BE

SUPERIOR TO ANY OTHER IN USE,

FOR THE FOLLOWING REASONS:

1st. They are perfectly self-draining, as no water can remain in the [illegible] when shut off, not requiring valve, and protect it from the action of freezing water.

2d. They are so constructed that the valve [illegible] and when turned back as far as it will go, the [illegible] water, and the [illegible] is left open, and [illegible] the water from the [illegible] being provided with a [illegible] opening at the [illegible] of the valve.

3d. The [illegible] are so [illegible] that [illegible] and [illegible] to [illegible] and [illegible] and [illegible] will be [illegible] [illegible] [illegible]

protecting the tube from dirt, etc.;' and there is not the slightest hint or intimation that this loose casing C possesses any peculiarity of construction or function which characterizes the invention described or intended to be patented.

The drawings are referred to in the specification as follows:

'*Figure 1 represents a longitudinal central section of the hydrant, showing the parts of which it is composed and the manner of their arrangement.*'

And, upon inspection of these drawings, it appears that the part designated C is represented as a detached case or jacket surrounding the hydrant tube or stock, resting at the bottom upon an upward projection from the branch of the water main and confined at the top by a bead immediately above it on the body of the hydrant, so that the specific mention of the 'case C' in the second claim of this original patent as one among several parts of which the 'arrangement' is claimed, 'as herein described for the purpose specified,' can signify nothing else than that it is, in the language of the only description there is of it, 'a loose casing around the hydrant tube for protecting the tube from dirt, etc.,' and that its 'arrangement' is as represented in the drawings, so as to be incapable of any end play or up-and-down motion."

He here contradicts the evidence of his clients' senses as well as of his own. For in the words, *a loose casing around the hydrant tube, for protecting the tube from dirt, etc.*, the idea of a confined casing incapable of any end-play or up-and-down motion, is prohibited.

Bailey did not patent the loose case; he did not claim it. He invented, he described and he claimed *the connections*—the loose joints which this loose case makes respectively with the stock and base of the hydrant. He invented, he described and he claimed the new *arrangement* of the five parts of the hydrant and their relation to each other as a whole, which *Samuel R. C. Mathews* recognized, in 1868, on beholding the original patent, notwithstanding the defective drawing.

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The New York hydrant, with a loose case around it (an independent case not a part of the hydrant), having end play, had for more than twenty years before Bailey's invention, pointed out to those skilled in the art, the requisites of the end play of the loose protecting casing. Race & Mathews in August, 1860, were manufacturing and advertising hydrants having loose cases with end play.

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SUPERIOR TO ANY OTHER IN USE.

prepared manuscript for letter press upon this lithograph; his attention was called to the following from that letter press.

"3d. The frost can not leave the hydrant, as the outside case E is detached, and has room to play up and down two inches, thus accommodating itself to the ground without disturbing the hydrant H, or breaking the connection."

And he testified:

"I notice that the quotation you have made says, 'The frost can not leave the hydrant; it should be *heave*.' In all the hydrants that we had made previously, there had been some space for the casing to move, which we considered a mechanical necessity, in order to be certain that we could screw the hydrant stock down firmly on to its seat on the base without being prevented by the length of casing from so doing. In our earlier manufacture this distance had been about one inch. We afterward lengthened the flange on what we called the ground base of the hydrant, making it as shown in this lithograph, the object being to facilitate the setting of the hydrants at varying grade of sidewalks, so as to present a better appearance. In doing this we naturally increased the space for the movement of this casing, so that it was about two inches."

Transcript, pp. 264-265.

A casing with end play to protect from dirt, etc., was therefore no novelty in the year 1865, to Race & Mathews, nor to Bailey, nor to others skilled in the art.

The functions of this loose casing were thus well known and perfectly understood when Bailey entered this field of the mechanic arts. The new matter complained of here then, is but the amplification of the *why and wherefore* of the "*protecting the tube from dirt etc.*," of the original patent, a more specific statement of these well known functions, viz.:

"Sufficient space is left between the bead *a* and the upper terminus of the casing C to permit of sufficient up-and-down play of the said casing C for the purpose which will hereafter more fully appear.

This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base.

The main function of the casing C is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug." . . .

"This upheaval or movement is received by the casing C, which by its capability of sliding loosely up and down will accommodate the upheaval of the earth above mentioned without any liability to derange the plug or hydrant.

This is the chief function of the casing C, although it likewise serves the purpose of protection to the water pipe A."

Eames v. *Andrews*, 122 U. S. 40.

Mathews admits that he understood all this the instant that he saw the words *loose, casing around the hydrant tube*

for protecting the tube from dirt, etc. He did not need this explanation. He was claiming that the confined casing though loose in his manufactured articles, and he had claimed this as early as 1860, would perform these functions. Then he could not fail to see, "*from the general construction of the outside casing, and the cylindrical part of the body of the hydrant on which the case slides, and the bead for limiting the motion of the case,*" that the casing described must *slide up and down.* It had end play, as he saw it. The "accidental showing" of the confined casing of the defective drawing did not deceive nor mislead Race & Mathews. The original patent, then, it must be conceded, was sufficient to and did give to Race & Mathews full notice of the scope of Bailey's invention of the loose cased hydrant.

It was argued further

that, in order to fit this new description of the hydrant casing or jacket, the drawings of the reissue have been made to differ essentially from the drawings of the original patent, in that the drawings of the reissue represent considerable space as intervening between the top of the casing and the bead upon the body of the hydrant; whereas in the drawings of the original patent this bead was represented as located close above the top of the casing in such manner as to entirely prevent any end movement whatsoever.

But this drawing has ceased to exist; a new drawing has taken its place by the order of the only officer clothed with the power to allow it. The old drawing did not fit the old description, for if the bead were to be *located close above the top of the casing in such manner as to entirely prevent any end movement whatsoever,* the *loose casing* called for could not exist.

(d) *The Mistake.*

This brings us to the mistake which has been corrected.

The Allegata et Probata.

We set forth this very matter as the mistake which led to the application for and gave jurisdiction to the commissioner to grant this reissue.

Transcript, 10, 11.

This application re-opened the entire record. (§ 4916.) The original application of Aug. 16, 1867, the file wrapper and contents appertaining thereto, the original drawing,

December, SUNDAY, 3, 1865.

Hydrant

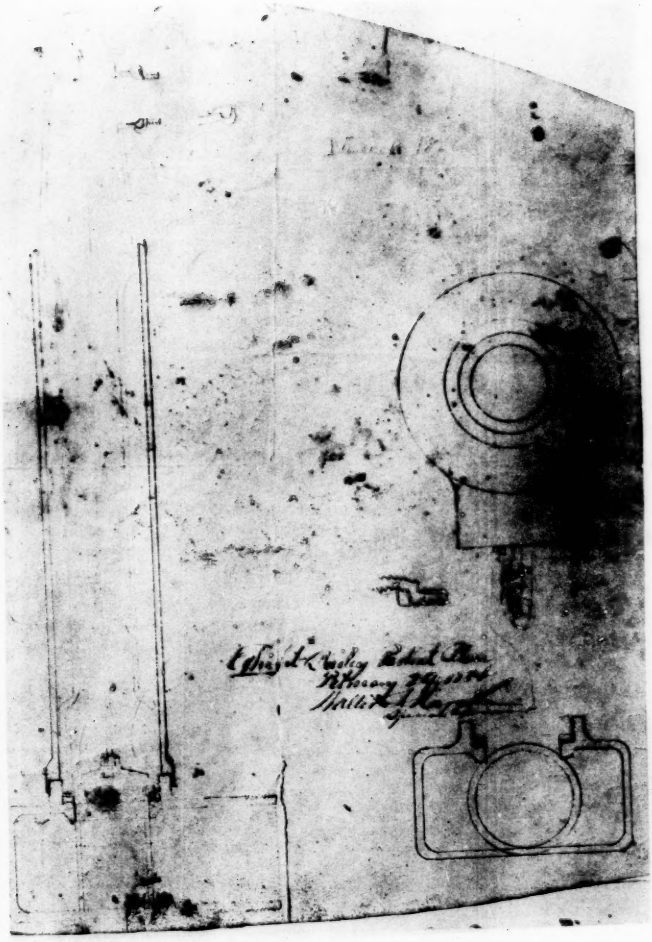
MONDAY, 4.

Exhibit Baileys Diary Sketch
Walter F. Marsha
Special Examiner

TUESDAY 5.

James Flower etal
The City of Detroit etal
No. 2872.

Transcript, 114 Print 56.



Transcript. 116. Print 56.

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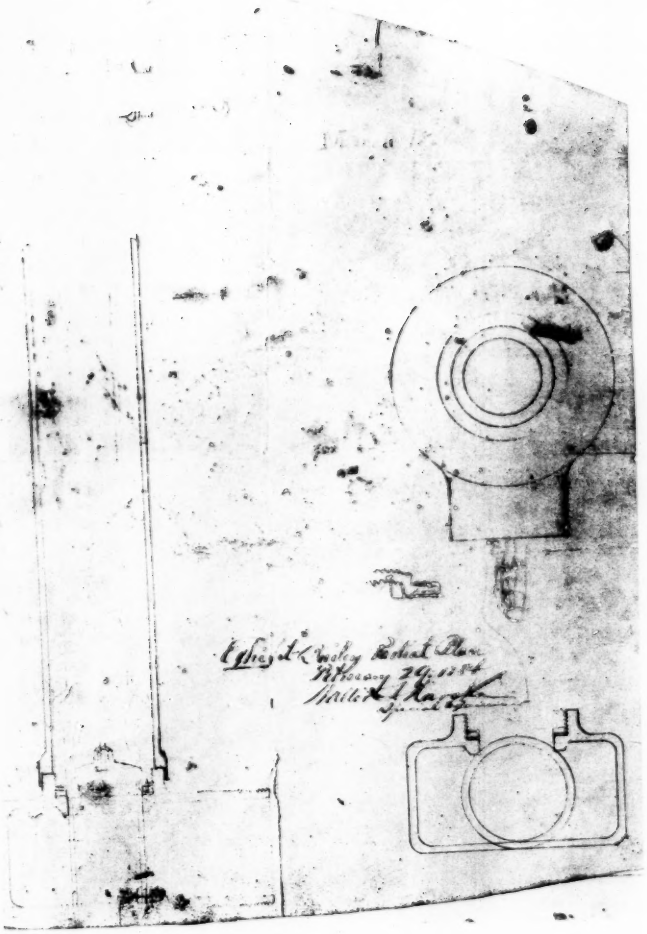


The Mistake.

the model and the original patent with its description and claims came again in review before the commissioner, together with the application for the reissue, and the amended drawing and the revised and corrected specification.

Transcript, pp. 593–602.

We have reproduced this entire record, but we understand that the only question to be investigated is whether the commissioner had, upon this record, a case for a reissue under § 4916. In other words, was there actually a mistake?

The original patent No. 75,344, shows the error on its face. Construed as the appellees' counsel construes it, the drawing is incompatible with the written description, but it is, after all, the written description which prevails; the drawing merely illustrates.

Hogg v. *Emerson*, 6 How. and 11 How.

The model made by the inventor exhibits the whole invention. The drawing made by his solicitors, construed as appellees' counsel would construe it, fails to show the loose casing described.

The reissued patent is conclusive upon this question; there having been a mistake, and that mistake having been corrected without adding new matter, and the comparison showing that the drawing has been amended by the model, the sole question, one of fact, involved was forever settled by the commissioner when he granted the reissue. He had jurisdiction; he acted. Did he act erroneously? Then the only remedy was by interference and suit under § 4915. Did he act corruptly? Then the remedy was by *quo warranto*.

Mowry v. *Whitney*, 14 Wall. 439.

But we have gone further in our case and shown the conception of this invention by Bailey, made in 1865.

This, when compared with the defective drawing, shows the mistake.

The Diary sketch made in 1865, shows the mistake.

The partial plan of March, 1866, produced by Bailey, as a witness, at the instance of the appellees, shows the mistake.

The experimental hydrant made and set up in 1865, shows the mistake.

The two models, one here, the other in the Patent Office, partially destroyed, show the mistake.

The patterns and hydrants made by Bailey, in 1866 and 1867, show the mistake.

The testimony of nearly all the witnesses examined, respectively, shows the mistake.

Such a mistake could be corrected at any time, at least during the lifetime of the patent.

It is true that it would not be proper to leave the drawings so long, not restored nor corrected, as to evince a neglect or design to mislead the public. (11 How., p. 606.)

If the maker of the machine appeared in truth to be ignorant of the existence of the patent right and did not intend infringement, it might go in mitigation of damages. (11 How. 607.)

But here the appellees' patentees saw the patent in 1868, and were informed by it, and by both parties to the patent, by Bailey himself, and by the commissioner, of the scope of it.

In case of a mistake under § 4916, no limitation as to the time of the granting a reissue is prescribed, and it has been on great deliberation decided that it may be done any time during the lifetime of the patent.

Wilson v. *Rousseau*, 4 How. 646.
Gibson v. *Harris*, 1 Blatch. 167; Curtis, § 288.

(*e*) *The Estoppels.*

The real defendants, R D. Wood & Co., are estopped from setting up the two defenses going to the validity of the reissue No. 6990.

Their assignors, Race & Mathews, saw the *loose casing having end play* on an inspection of a copy of the original No. 75,344, in the year 1868.

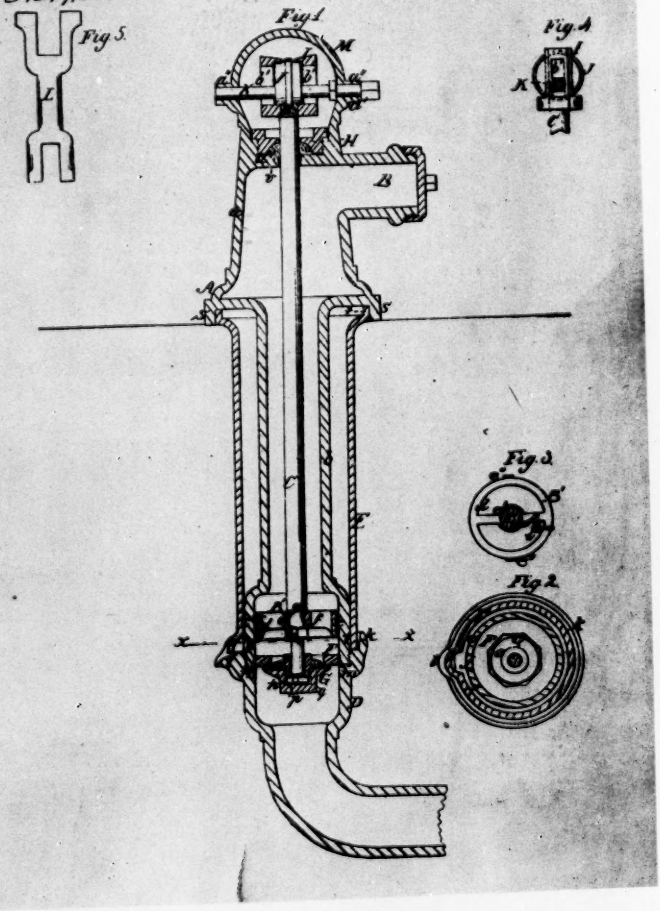
They applied for a patent for an independent casing Nov. 29, 1868, and on Dec. 17, 1868 the commissioner rejected their claim on reference to T. R. Bailey's hydrant, patented, No. 75,344, March 10, 1868, and Race & Mathews were promptly notified of the action of the patent office and informed that the model of No. 75,344 showed the whole invention; whereupon they asked Bailey to file a disclaimer of this feature of his hydrant, to-wit, the loose casing having end play, on the ground that Race & Mathews were the prior inventors of it. Bailey refused. They afterward, on

Race & Matthews.

Hydrant.

Patented Jan. 26. 1858.

No 19,206.



Nov. 16, 1869, procured their patent, No. 96,959, with its claim, covering all loose casings, without coming in conflict with Bailey. Cognizant of the apparent contradiction between the drawing and the model they assumed that the *accidental showing* was in the model.

Transcript, pp. 307–311.
J. A. Wiedersheim, Id. p. 257.

By failing to use the limitation by which Bailey characterized the invention, viz., *a loose casing around the hydrant tube*, they made their claim too broad so that their patent was held to be void by this court in March, 1882. (105 U. S. 54.) In 1872 by reissue No. 4,887, they carried the Bailey invention into their old patent of 1858, No. 19,206, where the drawing, description and model all forbade, by using the identical language first used in the art by Bailey in his original patent No. 75,344, viz., *the loose casing or jacket around the body of the hydrant.* In 1873 they brought suit against the Boston Machine Company, and for nine years contended for the construction of this language as covering a loose casing having end play. This court inevitably accepted this construction, and invalidated their reissue because the loose casing having end play was new matter, unwarrantably interpolated covering a different invention.

We insert an accurate copy of the drawing.

It will be observed that these flanges meet at *s* and *t*. There is shown no space, the inclosing flange *s* shutting closely over the inclosed flange *t*.

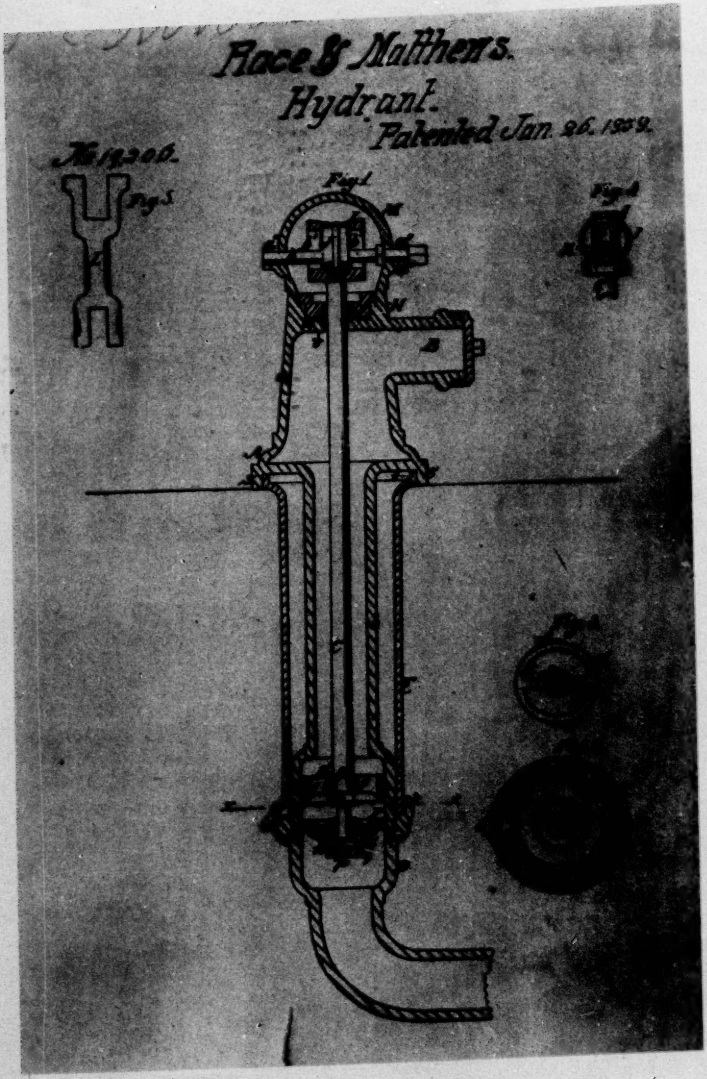
Throughout the patent No. 19,206, the jacket E is treated as a rigid part of the structure.

But all this was changed by the reissue, No. 4,887, of April 30, 1872. How?

By the insertion of new matter into the description and the language of Bailey, bringing in his loose cased hydrant is the new matter.

Having procured the decision of this court giving to this language the construction that it covered the *sliding case* (Transcript, 338) in No. 4,887, should they be now permitted to deny this construction to it in Bailey's patent, No. 75,344?

Their position now here that there is no hint or suggestion of a loose casing having end play around the hydrant


Race & Matthews.
Hydrant.
Patented Jan. 26. 1859.
No 19,306.
Fig. 5.
Fig. 1.
Fig. 4.

The Estoppels.

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Transcript, pp. 307–311.
J. A. Wiedersheim, Id. p. 257.

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Their position now here that there is no hint or suggestion of a loose casing having end play around the hydrant

tube, in No. 75,344, is in direct contravention of all these acts and admissions and of the solemn adjudication of this court to which they were the most interested parties. Lastly, since this decision in March, 1882, they have procured a reissue of their 1869 patent on the pretext of a mistake. On their application for this reissue, they were again referred to No. 75,344, as anticipating them, but they overcame this by admitting *that Bailey's case was identical with theirs*, but claiming that Race & Mathews were the first inventors of it.* Having thus lost one patent by failing to use this language, and destroyed the other by interpolating the same into it, it would seem that such plain terms ought to have been sufficient to apprise their learned counsel of the loose casing having end play.

These estoppels conclude them upon the validity of the reissue, No. 6990, and establish the appellee's title to the invention of the loose cased hydrant.

2. THOMAS R. BAILEY, JR., WAS THE FIRST AND ORIGINAL INVENTOR OF THE LOOSE CASED HYDRANT.

(*a*) *The thing patented.*
(*b*) *The patentee.*
(*c*) *The conception.*
(*d*) *The development of the idea.*
(*e*) *The original patent.*
(*f*) *Race & Mathews; their conception and the changes in their manufactures.*

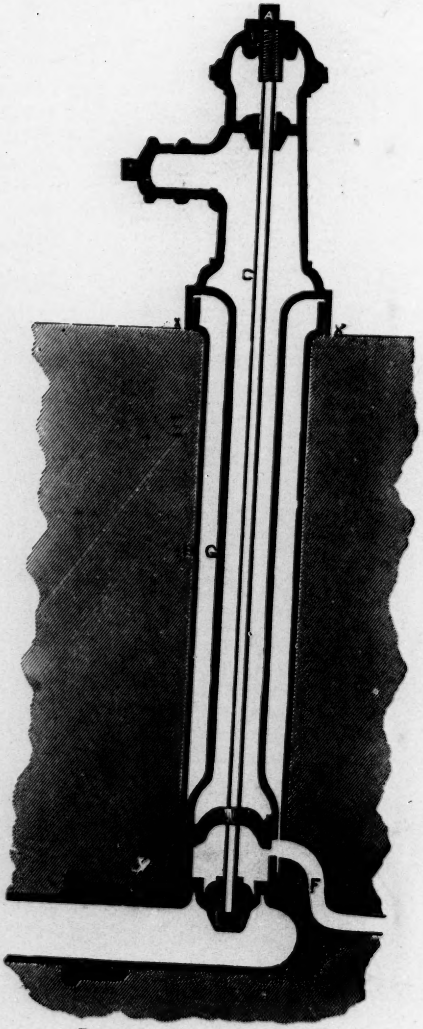
(*a*) *The thing patented.*

A hydrant made in three parts: 1, the stock; 2, the elbow, constituting the hydrant tube, fastened together by means of brass bushing, and the screw or its equivalents, with 3, *a loose casing around the tube, for protecting the tube from dirt, etc.*, is the thing patented in No. 75,344, dated March 10, 1868, issued to Thomas R. Bailey, Jr. It is the thing described by Race & Mathews in reissue No. 4,887, dated April 30, 1872, of No. 19,206, dated January 26, 1858.

Who was the first inventor of a hydrant thus constructed?

The evidence of prior invention on the part of the appellants consists in the patent of T. R. Bailey, Jr., No. 75,344, as reissued March 14, 1876, No. 6,990; the testimony of

* Transcript, p 670.



Race & Mathews, 1858–1866.

Thomas R. Bailey, James E. Ferguson, George Bailey and others.

(*b*) *The patentee.*

Mr. Bailey was the son of Thomas R. Bailey, a manufacturer, machinist, and an inventor. The father and son were in business a long time at Lockport, N. Y.

(*c*) *The conception.*

In 1865 Thomas R. Bailey, Jr., was engaged in business at Buffalo, New York. That Spring, while on a visit at Lockport, he chanced to see a hydrant of the pattern of Race & Mathews' old style hydrant, dug up, which had been broken by the frost.

That hydrant was constructed as shown in the annexed cut, viz.:

Transcript, p. 105.

He says in speaking of the broken hydrant, viz.:

415q. A. My recollection is that it was very near the bottom of the stock, just above the bottom of the valve. I should say it happened by the earth freezing, bringing a force under this overhanging projection on the body of the hydrant, greater than the strength of the material of which the hydrant was made.

It occurred to me that if I should put a loose case upon a hydrant and get rid of a shoulder or fulcrum for the earth to act upon when upheaving by frost, the difficulty would be overcome.

Transcript, p. 105.

A glance at this Race & Mathews' hydrant shows how true this idea is; the whole strain of the upheaving earth is directly upon the stock, the force acting by upward pressure upon the flange or shoulder at x.

(*d*) *The development of the idea.*

Then he made drawings, patterns and an experimental hydrant, and set it up in the fall of 1865. Then in March, 1866, he made a partial plan which is in evidence.

See Exhibit Bailey partial plan, called out by defendants' counsel.

Transcript, pp. 81–83.

Then he made patterns for hydrants, then two models; one went to the patent office, the other is here; he kept this for his own use. In the summer of 1867 he made a hydrant which was set on Transit street in the city of Lockport by James Clapham. Then in the summer of 1869, he made five more for use in the city of Lockport. They were

all cast from the same patterns; one of them was set on Main street in Lockport, N. Y. It was dug up and put in evidence in this case by the defendants' counsel.

The annexed cuts show the Bailey hydrant.

Figure 1 is a complete representation of it as it came out of the ground from the place where it had been set and in successful use for about 12 years. *Id.*, pp. 94, 202, 374, 376, 408.

All the drawings, plans, sketches, models and hydrants made by Bailey, exhibit the same structure, with the same loose casing, substantially like those made by R. D. Wood & Co., since 1870, and by the defendants since 1876.

We will compare them one by one, viz:

1. The Diary sketch.
2. The experimental half sized hydrant.
3. Bailey's partial plan.
4. Bailey's Original Model.
5. Remains of the patent office model.
6. The hydrant set by James Clapham in November, 1867.
7. The Bailey hydrant.

(*c*) *The original patent.*

Bailey applied for a patent Sept. 16, 1867, and it was issued to him March 10, 1868.

He fully described the hydrant.

"Figure one represents a longitudinal central section of the hydrant, showing the parts of which it is composed and the manner of their arrangement. Figure 2 is a cross-section of Figure 1, through the line *x x*.

Similar letters of reference indicate corresponding parts.

A represents the hydrant tube, from which the water is discharged. B is the horizontal section which is connected with the water main, and which forms the valve chamber. C *is a loose casing around the hydrant tube, for protecting the tube from dirt, etc.*"

* * * * * * * * * *

The tube A is secured to the horizontal section by the ring nut *m*," etc.

The claims were for:

1. A HYDRANT OR WATER-PLUG constructed substantially as shown and described, that is to say, with the parts A and B connected together as shown, and with a cylinder valve and a waste water valve connected and operated in combination substantially as herein specified.

2. The arrangement of the parts A, B, valve D, case C, and stuffing box H, as herein described, for the purpose specified.

In the words, *C is a loose casing around the hydrant tube, for protecting the tube from dirt, etc.*, the invention described and claimed is clearly, tersely and fully set forth.

Although there was a discrepancy between the drawing

and the model, the drawing showing too little space between the bead *a* and the case as represented in Fig. 4, *supra* (see drawing), yet Samuel R. C. Mathews veiwing these claims and a copy of this drawing, at once saw the loose casing, and charged Bailey with having copied from the manufacture of the Niagara Manufacturing Company the features of the loose casing. From the Patent Office Report and accompanying drawings he had learned of the drawings and claims of Bailey's Original No. 75,344. He admits this.

"You will not swear positively, will you, that Bailey took his pattern from Race & Mathews' manufactured article? * * *

A. I can not swear that he did, because I did not see him do it; but I believed then, and believe now, that he copied from our patterns.

144 C. Q. What made you then believe so, and what makes you now believe so? State the grounds of your belief.

A. Simply the construction of certain parts of his hydrant.

145 C. Q. What parts?

A. The general construction of the outside casing, the cylindrical part of the body of the hydrant on which the case slides, and the bead limiting the motion of the case. * * *

146 C. Q From what had you learned, in August, 1869, of these peculiar features of Bailey's hydrant?

A From the Patent Office Report and accompanying drawings, I presume." Transcript p. 289.

He was informed by Elisha Foote, commissioner of patents, under date of Dec. 17, 1868, as follows:

"A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention."

This was in relation to his application for a patent filed Oct. 29, 1868.

On being informed of this decision against him, he did this. Hear what he says:

"I called to see Mr. Bailey. (They both then lived in Lockport, N. Y., and were manufacturing on the same street.) I won't undertake to repeat the conversation. It is a good many years since. I can give the substance of it. It was that Mr. Race and myself had applied for a patent on an outside casing having end play, and it had been rejected on reference to his model; *and I asked him to sign a disclaimer as to any invention in that feature, as he knew that we, Mr. Race and myself, were the inventors of it; but he refused to do anything in the matter.*" Transcript, p. 273.

Bailey anticipated Race & Mathews, for he conceived this hydrant with a loose frost jacket around the hydrant tube in the spring of 1865. The idea of such a hydrant did not enter the heads of Race & Mathews until after Bailey had

perfected his invention and set up his experimental hydrant.

(*f*) *Race & Mathews' conception and the changes in their manufactures.*

Samuel R. C. Mathews, the co-patentee with Washburn Race, and one of the real defendants, was the only witness produced on the part of the defendants to support the issue of prior invention in this cause.

He fails to disclose where, when and how and under what circumstances any conception or idea of the thing patented originated. He begins in March or April, 1866, nearly a year after Bailey had made the invention.

Their conception related to the device of any and every loose jacket having end play. Their conception of the invention was of the casing itself independent of the hydrant.

On June 11, 1884, Mr. Mathews testified.

In speaking of the Niagara Manuf. Co.'s Lithograph, he then and there said:

"The invention, or rather the embodiment of our invention, is shown in this lithograph."

222 C. Q. What is that?

A. The use of an outside detached casing surrounding the hydrant, having the upper end of the same around and outside of the base of the hydrant at the surface of the ground, so that any upheaval of the casing could be readily seen and the case driven back without disturbing or removing the hydrant."

Transcript, p. 300.

This idea is not of any arrangement of parts, of any particular combination, but of the broad claim of the 1869 patent, which was found to have been anticipated by the New York Hydrant Box in the Boston Case (105 U. S. p. 54).

It does not disclose "the general construction of the outside casing, nor the cylindrical part of the body of the hydrant on which the case slides, nor the bead for limiting the motion of the case," which, as he testifies, characterized the invention which he saw in No. 75344, in 1868.

His testimony is all pointed at the upper joint between the casing and the hydrant. It goes to the thing patented in 1869, and not to the thing patented by him in reissue No. 4,887 in 1872 or in reissue No. 10,452 in 1884. He does not show that he ever invented that. He never made a hydrant with a loose casing around the body of the hydrant until 1870. His testimony carries us back to his engagement with Mr. Race in 1857, at Seneca Falls, N. Y., under the firm of Race & Mathews. He carried on business at Seneca

RACE & MATHEWS'
PATENTED JAN. 26TH 1858.
FIRE HYDRANT
MANUFACTURED BY THE
NIAGARA MANUFACTURING COMPANY.
LOCKPORT, N. Y.
ORDINARY LEVEL OF PAVEMENT
ORDINARY LEVEL OF PAVEMENT
OUR FIRE HYDRANT
HAS BEEN THOROUGHLY TESTED AND PROVED TO BE
SUPERIOR TO ANY OTHER IN USE!
FOR THE FOLLOWING REASONS:
RUNNING THEM DOWN TO BOTTOM OF BRANCH-PIPE.
BANE, SONS & CO. BUFFALO, N.Y.

perfected his invention and set up his experimental hydrant.

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BACE & MATHEWS'

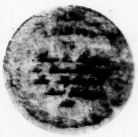
PATENTED JAN. 26TH 1858.

FIRE HYDRANT

MANUFACTURED BY THE

NIAGARA MANUFACTURING COMPANY.

LOCKPORT, N.Y.



OUR FIRE HYDRANT

HAS BEEN THOROUGHLY TESTED AND PROVED TO BE

SUPERIOR TO ANY OTHER IN USE!

FOR THE FOLLOWING REASONS!

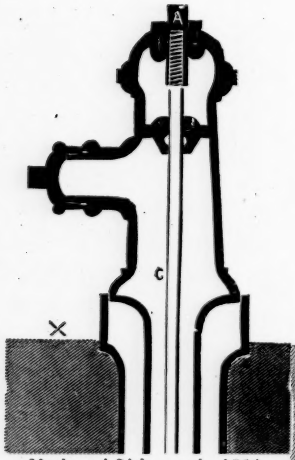
RUNNING THEM DOWN TO BOTTOM OF BRANCH-PIPE.

PIPE TO "BASE"

ORDINARY LEVEL OF PAVEMENT

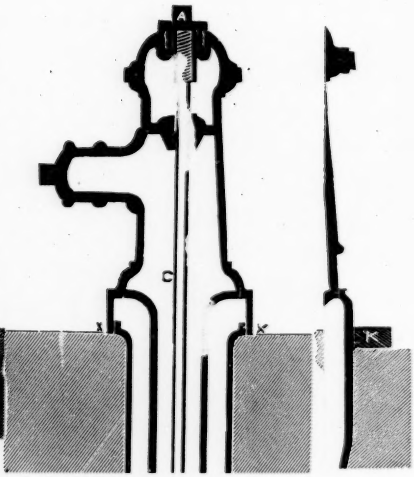
ORDINARY LEVEL OF PAVEMENT

No. 5.



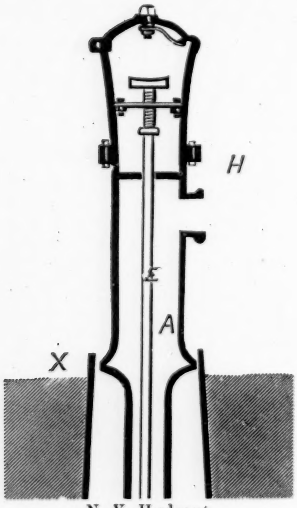
Mathews' Lithograph, 1866.

No. 4.



1860—1867.

No. 8.



N. Y. Hydrant.

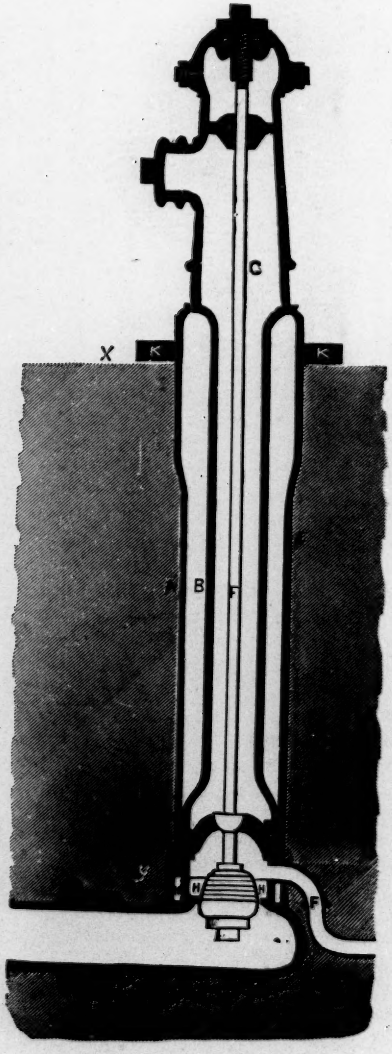
awing.

No. 1. Manufacture at Seneca Falls, N. Y., 1858–1860—s

No. 2. Casing and elbow connected together in the groun

No 3. Stock removed.

No. 4. First change—space two inches between flanges a



Race & Mathews, 1866–1870.
(Gleason, 1866.)

Race & Mathews; their Concepti n.

Falls, N. Y., until September, 1860, when they removed their works to Lockport, N. Y., where they continued in business under the firm of Race, Mathews & Co., until September, 1864; after that under the corporation called the Niagara Manufacturing Company, until August, 1868, then Helen M. Lloyd succeeded to the business until the summer of 1869. From that until the spring of 1870 Mathews had hydrants made by Alexander Pound at Lockport.

In May and June, 1866, the witness Gleason turned off the upper flanges and conformed the casing of the old hydrant, (see cut page 25, *supra*,) and produced a structure like this, viz.:

(See model Race & Mathews hydrant.)

At x "the general construction of the outside casing, the cylindrical part of the body of the hydrant and the bead" appear, but the waste pipe and its functions at y preclude the idea of a loose casing having end play.

The annexed cuts *seriatim*, Nos. 1–8, show the expansion of Race & Mathews' idea of their invention from their 1858 patent, No. 19,206, culminating in their patent of 1869, No. 96,959, covering the New York Hydrant Box, as shown in No. 8.

Bu this did not give the absolutely loose casing nor produce the Bailey hydrant. They had departed from the 1858 patent, No. 19,206, and upon the casing, at or near its bottom, were casting the waste pipe F, marking all their hydrants "patented Jan. 26, 1858."

In 1870 Mathews went to Philadelphia to live. Race died soon after this. Mathews there soon united with R. D. Wood & Co. for the manufacture and sale of hydrants, and then made another important change in the Race & Mathews hydrants.

This brings us to the alleged infringement—to the hydrants in use in the city of Detroit.

228 C. Q S. R. C. Mathews.

"I produce here another lithograph and ask you to examine the sectional view upon the same, and state how the part marked 'Hydrant case' thereon compares in shape with the corresponding part in Exhibit Race & Mathews Hydrant?

A. The principle of the case is the same, *This has not the spout for passage of the waste water at the bottom of it, as shown in the Race & Mathews Exhibit.*

Race & Mathews; their Conception.

Complainant's counsel offers the lithograph referred to in evidence marked 'Exhibit Duval & Hunter Lithograph.'"

Transcript, pp. 301, 338.

205 C. Q. You remember the brass model labeled 'Defendant's Model' used during the examination of witnesses in this case in the city of Detroit—does that fully and completely represent the new style Race & Mathews Hydrant, concerning which you have testified, so far as the frost case is concerned?

A. I think it does.

206 C. Q. Which, to your mind, is the most perfect representation—this model, or the board model marked Race & Mathews' new style hydrant—which you have produced here?

A. I should say the board model, as it is made full size to a scale, *and shows a spout attachment at the lower end of the casing.*

Transcript, p. 297.

The theory that the slip-joints of the loose casing upon the Bailey hydrant could have been the invention of Race & Mathews, is absurd. They started with the hydrant which they had been manufacturing from 1860 to 1866, they altered the upper joint and conformed it to the slip-joint. But the waste pipe was on the bottom for the passage of the waste water, upon which they had always laid the greatest stress, viz.:

2d. The surface water can not run back into the hydrant (as in case with the old ones, causing them to freeze and burst in winter), but, on the contrary, they are so arranged as not only to carry off the surface water, but they also drain the ground for considerable distance around the hydrant, keeping it perfectly dry. This is effected by means of the drainage pipe F."

See "Exhibit Race, Mathews & Co. Lithograph."

Transcript, p. 200.

Exhibit Niagara Manuf. Co. Lithograph.

Transcript, p. 338.

All this is omitted from R. D. Wood & Co.'s advertisement.

See Duval & Hunter Lithograph.

Why? Because their hydrants have no waste pipe.

To get a loose casing into the Race & Mathews hydrants of 1860 to 1866, required radical changes in the casing at its connection with the hydrant at both top and bottom. The flanges *s* and *t* at the top had to be turned off; the waste pipe at the bottom had to be cut off.

See Model Defendant's Hydrant.

See Duval & Hunter Lithograph.

Transcript, page 301.

The following cuts illustrate this change, which was first made in 1870 by R. D. Wood & Co., with whom was Samuel R. C. Mathews.

M. A. T. H. E. W. S.'

PATENTED

JAN. 26TH 1858 & NOV. 16TH 1858.

FIRE HYDRANT

Manufactured by

R. D. WOOD & Co

FOUNDRIES: MILLVILLE / FLORENCE N.J.

No. 400 Chestnut Street

PHILADELPHIA, Pa

ORDINARY LEVEL OF PAVEMENT

ORDINARY LEVEL OF PAVEMENT

Also, Manufacturers of

CAST IRON

WATER & GAS PIPES & FITTINGS.

LAMP POSTS, METER LAMPS &c.

HYDRANT CASE

OUR FIRE HYDRANT

Has been thoroughly tested and proved to be

SUPERIOR TO ANY OTHER IN USE!

FOR THE FOLLOWING REASONS:

1st. They are perfectly anti-freezing, as no water can remain in the Hydrant when shut off.

2d. The Head-piece bears the Hydrants, as the outside case (A) is detached, and has a vertical play of four inches, thus accommodating itself to the upheaving of the ground without disturbing the Hydrant or breaking the elbow at bottom.

3d. They do not require packing or covering in winter to prevent freezing, as the air-chamber between the body of Hydrant and outside case forms the most perfect non-conductor known.

4th. They are all of Iron, and require no wooden boxes.

5th. They are operated without removing the cap on top, [illegible] working nut (A) working the valve rod (C) up and down within it, saving the breakage of hinges by careless use.

6th. In case of any obstruction in the valves, or for repairs, the Hydrant can be unscrewed from the lower socket in elbow, and the working parts withdrawn (leaving the case (E) undisturbed in the ground) and replaced in a few minutes, requiring no excavating, or disturbing of pavements, curbing, or side-walks.

7th. They are ornamental and handy in appearance, and can be set at any elevation above grade of side-walk.

The attention of Water Companies, Engineers and Contractors is solicited to a close examination of the above advantages over all other Hydrants in use.

CLASSIFICATION OF HYDRANTS.

[illegible]

DUVAL & HUNTER, PHILADA

Race & Mathews; their Conception.

Complainant's counsel offers the lithograph referred to in evidence marked 'Exhibit Duval & Hunter Lithograph.'"

Transcript, pp. 301, 338.

205 C. Q. You remember the brass model labeled 'Defendant's Model' used during the examination of witnesses in this case in the city of Detroit—does that fully and completely represent the new style Race & Mathews Hydrant, concerning which you have testified, so far as the frost case is concerned?

A. I think it does.

206 C. Q. Which, to your mind, is the most perfect representation—this model, or the board model marked Race & Mathews' new style hydrant—which you have produced here?

A. I should say the board model, as it is made full size to a scale, *and shows a spout attachment at the lower end of the casing.*

Transcript, p. 297.

The theory that the slip-joints of the loose casing upon the Bailey hydrant could have been the invention of Race & Mathews, is absurd. They started with the hydrant which they had been manufacturing from 1860 to 1866, they altered the upper joint and conformed it to the slip-joint. But the waste pipe was on the bottom for the passage of the waste water, upon which they had always laid the greatest stress, viz.:

2d. The surface water can not run back into the hydrant (as in case with the old ones, causing them to freeze and burst in winter), but, on the contrary, they are so arranged as not only to carry off the surface water, but they also drain the ground for considerable distance around the hydrant, keeping it perfectly dry. This is effected by means of the drainage pipe F."

See "Exhibit Race, Mathews & Co. Lithograph."

Transcript, p. 200.

Exhibit Niagara Manuf. Co. Lithograph.

Transcript, p. 338.

All this is omitted from R. D. Wood & Co.'s advertisement.

See Duval & Hunter Lithograph.

Why? Because their hydrants have no waste pipe.

To get a loose casing into the Race & Mathews hydrants of 1860 to 1866, required radical changes in the casing at its connection with the hydrant at both top and bottom. The flanges *s* and *t* at the top had to be turned off; the waste pipe at the bottom had to be cut off.

See Model Defendant's Hydrant.

See Duval & Hunter Lithograph.

Transcript, page 301.

The following cuts illustrate this change, which was first made in 1870 by R. D. Wood & Co., with whom was Samuel R. C. Mathews.

MATHEWS,

PATENTED

JAN. 26TH 1858 & NOV. 16TH 1869.

FIRE HYDRANT

Manufactured by

R.D. WOOD & Co.

FOUNDRIES { MILLVILLE, N.J. / FLORENCE, N.J.

No. 400 Chestnut Street

PHILADELPHIA, PA.

Also Manufacturers of

CAST IRON

WATER & GAS PIPES & FITTINGS.

&

LAMP POSTS, METER & LAMPS &c.

OUR FIRE HYDRANT

Has been thoroughly tested and proved to be

SUPERIOR TO ANY OTHER IN USE!

FOR THE FOLLOWING REASONS.

1st They are perfectly anti-freezing, as no water can remain in the Hydrant when shut off.

2d The Post cannot break the Hydrant, as the outside case (F) is detached, and has a vertical play of four inches, thus accommodating itself to the upheaving of the ground without disturbing the Hydrant or breaking the elbow at bottom.

3d They do not require packing or covering in winter to prevent freezing, as the air-chamber between the body of Hydrant and outside case forms the most perfect non-conductor known.

4th They are all of Iron, and require no wooden frames.

5th They are operated without removing the cap on top, ( ) working nut (A) working the valve rod (C) up and down within it, saving the breakage of hinges or cankers nut.

6th In case of any obstruction in the valves, or for repairs, the Hydrant can be unscrewed from the brass socket in elbow, and the working parts withdrawn (leaving the case (E) undisturbed in the ground) and replaced in a few minutes, requiring no excavating, or disturbing of pavements, curbing, or side-walks.

7th They are ornamental and neat in appearance, and can be set at any elevation above grade of side walk.

The attention of Water Companies, Engineers, and Contractors is solicited to a close examination of the above advantages over all other Hydrants in use.

CLASSIFICATION OF HYDRANTS.

No. 1 — 4 in. Hydrant, single discharge, to connect with 6 in. cast pipe.

No. 2 — 4 in. " " " " 6 in. "

No. 3 — 4 in. " " " " 8 in. " with Mathews Joint.

No. 4 — 4 in. " " " " 6 in. " with Mathews Joint, Cap and Chain.

No. 5 — 4 in. " " " " 8 in. "

ORDINARY LEVEL

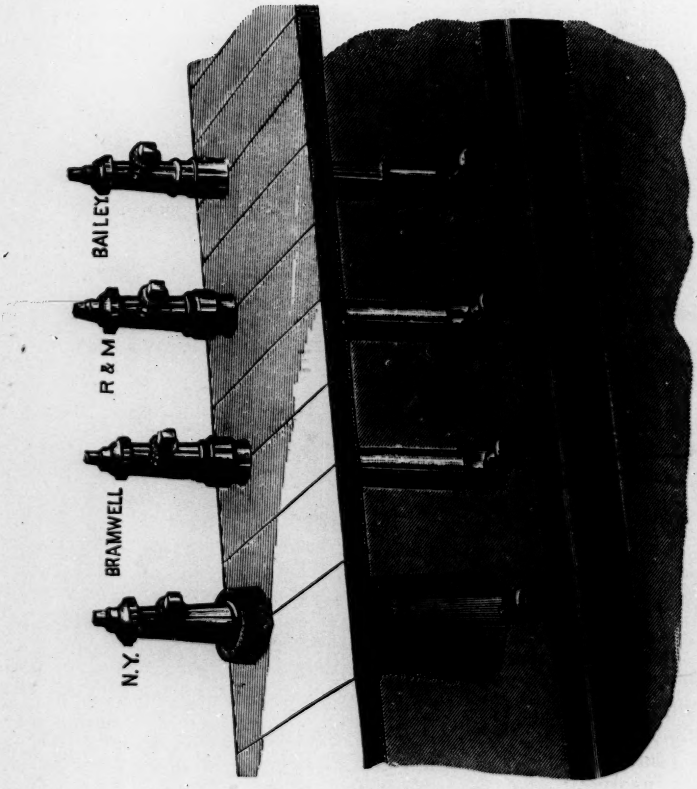
OF PAVEMENT

ORDINARY LEVEL

OF PAVEMENT

HYDRANT CASE

DUVAL & HAINES, PHILADA.



STATE OF THE ART.

N. Y. Hydrant with box in position, 1850–1887.

Bramwell Patent, 1857—a failure.

Race & Mathews, 1858–1867—a failure.

T. R. Bailey, Jr., 1865–1887—a success—with *loose casing* around the hydrant tube.

State of the Art.

Annexed cuts illustrate the state of the art. In the Patent Office Bailey advanced from the Race & Mathews hydrant, and first described and claimed the loose cased hydrant of which we have shown him to have been the original and first inventor, while Race & Mathews in their 1869 patent receded so as to cover the New York wooden box; but in their reissues, No. 4,887 and No. 10,452, they have shown the advance made by Bailey. They evidently borrowed their ideas from Bailey; they have used his language to secure to themselves his invention; it therefore seems to us quite inconsistent for them now here, to urge as against the true inventor, lack of novelty for the very device for which they have so long sought and have twice patented, viz., No. 4,887 Ap'l 30, 1872, and No. 10,452 Feb. 26, 1884.

5. Laches.

The defense of *laches* has no foundation in fact. The infringing hydrants were not made as we have seen, until the waste pipe was cut off at Philadelphia, after 1870, by R. D. Wood & Co. The hydrants made at Seneca Falls and Lockport, by Race & Mathews, and the concerns of which they were members from 1858 to 1869, none of them exhibited the Bailey hydrant. If they did, all these concerns had either passed out of existence or become hopelessly insolvent, and from the *tabula in naufragio* Mathews had taken the hydrant patents, and left Lockport, and located himself in Philadelphia. Bailey had lost sight of him for five years; when Bailey went to Saginaw, in 1875, he there for the first time learned of these R. D. Wood & Co. hydrants, and of the location and the attitude of Mathews toward the appellants. He thereupon, by letter, apprised the appellants of his invention, submitted to them his patent, obtained the reissue, after taking counsel and examination of the model at the patent ffice, and sold his patent to the appellants. They immediately sent out their circulars;* one reached the firm of R. D. Wood & Co., who an-

*See page 35 *infra*.

swered it.† In 1877, Mathews in view of the litigation then progressing with the Boston Machine Company, at their office in Detroit, asked the appellants to await the result of that suit, suggesting arbitration. The city of Detroit, and its fire commission and water commission, were promptly notified of appellants' claim under the Bailey patent. The purchase of these hydrants by the city and its aids, was not because they understood or believed that Bailey was not claiming the invention, but because of R. D. Wood & Co.'s agreement to indemnify and defend. Then too, the appellants were continually in the market competing with R. D. Wood & Co., at every turn, for these hydrants.

The appellants first learned in August, 1883, of the adverse decision, and when Mathews had failed to appear and apprise them of the decision in the Boston Machine Company case, it was time enough then for them to begin; the patent had yet eighteen months to run.

Instead of tendering the suggested arbitration, Mathews and his copartners were busily engaged at the Patent Office, behind our backs, in securing the reissue, No. 10,452, which issued to them Feb. 26, 1884, nearly six months after this suit was brought, by which they secured to themselves the guise of a patent covering the very device which Bailey first pointed out, as we have shown, when he claimed, viz.:

"A hydrant constructed substantially as shown and described, that is to say, with the parts A and B connected together as shown."

By adding to No. 96,959 what it was by this court found to lack, viz.:

"The said case B, forming a comparatively close sliding joint with the hydrant both at top and bottom."
Transcript, pp. 647, 648.

In other words, they thus secured another patent for the Bailey hydrant.

The most disingenuous of the defenses, is *laches*.

We therefore ask that the decree appealed from be reversed.

All which is respectfully submitted.

EDWARD J. HILL,
Solicitor for Appellants.

† See page 35 *infra*.

Circulars; Waste Pipe.

NOTES.

*Exhibit Flower Circular.

To whom it may concern: Please take notice, that we are the owners of the patent granted to Thomas R. Bailey, dated March 10, 1868, for *Improvement in Hydrants*, and reissued to the said Thomas R. Bailey on the fourteenth day of March, A. D. 1876. We are informed that you are making, using or vending the hydrants covered by the said patent, and we hereby notify you that we shall hold you responsible for the said infringement of our rights to said hydrant, as secured to us by the said patent.

James Flower & Bros.

Detroit, March 31, 1876.
Transcript, pp. 57, 120, 140.

†Exhibit R. D. Wood & Co.'s Circular.

Our attention having been called to a circular issued by Messrs. Flower & Bros., of Detroit, evidently intended particularly for our customers, * * * *

Mr. Bailey took his plans (with the exception of what he called a cylinder valve, and which proved to be comparatively worthless), from the Niagara Manufacturing Company, of Lockport, New York, then owning and manufacturing *Mathews' Patent Fire Hydrant.* In his first application for patent his claim was confined to the above valve and to the combination of parts. In his reissue he swore to what he knew (we have no doubt) to be a falsehood in claiming invention of a frost jacket, he having seen hundreds of them made by the Niagara Manufacturing Company previous to the time he had any idea of getting up a hydrant.

We intend to take proceedings to have the patent set aside as void and fraudulently obtained, and in the meantime hold ourselves ready to defend any action brought against our customers by parties claiming rights under patents conflicting in any way with Mathews' patents.

Very respectfully,

R. D. Wood & Co.

Philadelphia, April 17, 1876.
Transcript, pp. 58, 120, 280, 287, 288.

The Waste Pipe.

Why it had to be cut off. (See cuts p. 31 *supra.*)

It needs but a casual examination of the Race & Mathews Hydrant to discover that the *looseness of the casing* claimed in their lithographic advertising sheet (see Race, Mathews & Co. Lithograph, p. 18, *supra*) of 1860 was really one of the main causes of the failure of that hydrant.

Turning to their 1858 patent, No. 19,206, we learn of the construction of the parts at the bottom, viz.:

"Around the outer side of the part (*c*) of the case A (*the stock near its bottom*) *a groove* (*r*) is made, said groove being *in the same plane* with the opening (*j*) in the part (*c*) and the spout or nozzle (*l*) on the pipe D."
Transcript, pp. 323, 605.

This makes up the waste pipe.

The Waste Pipe.

This arrangement was necessary, because in operating the machine, as stated in their patent:

"When the valve G (the main) is closed, the valve B (the waste) is above the opening (*j*), and therefore the water within the case A (the stock) may pass out through the opening (*j*) into the groove (*r*), and out at spout or nozzle (*l*)."

Transcript, pp. 323, 606.

But in practice, as we have seen from 1858 to 1870, Race & Mathews cast this nozzle (*l*) or spout upon the bottom of the jacket or casing E, as shown in their lithographs of 1860 and 1866, and in the Race & Mathews hydrant.

See Model Race & Mathews' Hydrant, Transcript, p. 265; Mathews, 16 Q. and answer.

Then if the frost in upheaving raise the jacket E, it must carry the spout or nozzle (*l*) up along with it, or break it off, thus effectually obstructing the drainage of the hydrant.

Indeed, the only novel thing in this part of the structure was found at the Patent Office to be this arrangement for the drainage, or waste pipe, for Race & Mathews were told by letter, under date of Dec. 31, 1857:

"Ed. J. Baker's hydrant, pat. 8th April, 1856, is provided with an arrangement of piston and valve so nearly similar to this that it would be found its equivalent, *but Baker has no waste pipe like yours.*"

Transcript, p. 6 8.

To meet this objection they promptly entered a disclaimer, thus:

"Neither do we claim separately the arrangement of the valves B′, G."

Transcript, pp. 608, 609.

And took their claims thus:

"1st. The annular valve B′ and the disk valve G attached to the rod C in combination *with the escape or leak opening* (*j*) and seat F. *the above parts being arranged to operate* as and for the purpose set forth."

"2d. The combination of the case A, induction pipe D, provided with flanch (*k*), and the jacket E, when arranged as herein shown and described to effect the desired end, to wit, the ready removal, when necessary, of the case and working parts of the hydrant for repairs."

Transcript, pp. 608, 609.

This admitted of no *loose casing;* it required none. To give scope to the well known function of the loose casing; to protect from the upheaval, etc. (the very thing charged

against us in this contention as new matter), this waste pipe at the bottom as well as the flanges at the top had to go. This waste pipe would be displaced or broken off by upheaval unless cut off before the hydrants leave the shop; it could not stay on the bottom of the casing; it had no place upon a loose casing susceptible of the end movement imparted by the surrounding earth, one of the incidents to which it was liable from the dirt in which it must be two thirds buried.

It is going a long way around to avoid the charge of infringement, and much further to establish the faintest glimmering of an idea of invention or of anticipation, because of anything accomplished by Race & Mathews.

When, in 1866, the pattern maker, Gleason, did this:

S. R. C. MATHEWS: "26 Q. State just what the character of the work was which he did.

A. It was altering the pattern of the hydrant so that the upper portion of the casing passed outside of the body of the hydrant at the surface of the ground, which was made cylindrical so as to form a telescopic joint and allow for the upheaval of the case."

Transcript, p. 267.

The *upper joint made by the loose casing with the stock* in the Bailey hydrant was appropriated.

And when R. D. Wood & Co. cut off the waste pipe at the bottom of the case and liberated the confined casing of the Race & Mathews hydrant, *the lower joint made by the loose casing with the elbow* in the Bailey Hydrant was taken. In this way R. D. Wood & Co. got the parts "A and B connected together as shown," or "the arrangement of the parts A, B, valve D, case C and stuffing box H as shown and described, and for the purpose specified," by Bailey in No. 75,344.

R. D. Wood & Co. thus reached for and took the invention secured to Bailey and his assigns, the appellants here, in reissue No. 6,990, by surrounding their (R. D. Wood & Co.'s) hydrant with a loose casing adapted to and arranged with like parts as in Bailey's hydrant; they thus have appropriated

"The combination of the hydrant or fire plug pipe A, supply pipe B, valve D, casing C, and stuffing box H, substantially as and for the purpose shown,"

in this reissue.

The Valves as Equivalents.

The puppet or conical valve is simply a stoppel placed over the mouth of the tube or aperture, as seen in the flute, etc.

The cylinder valve is but the tube to be pushed up against the stoppel, as seen in pumps and elsewhere.

In operating the hydrant it shuts off the water to push the stoppel against the mouth of the tube, or to push the mouth of the tube against the stoppel equally as well. There could be no patentable difference whether the one valve or the other be used in the combination or arrangement in controversy.

Nothing could be plainer than that these old and well known valves are the exact equivalents, each for the other, in this combination or arrangement.

Transcript, p. 659.

Edward J. Hill
Solicitor for Appts

Supreme Court of the [illegible]

OCTOBER TERM, 1901.

No. 208.

JAMES FLOWER ET AL.,

APPELLANTS,

v.

CITY OF DETROIT ET AL.,

APPELLEES.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF MICHIGAN.

BRIEF FOR THE APPELLEES.

GEORGE L. [illegible],
[illegible]

The Valves as Equivalents.

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In operating the hydrant it shuts off the water to push the stoppel against the mouth of the tube, or to push the mouth of the tube against the stoppel equally as well. There could be no patentable difference whether the one valve or the other be used in the combination or arrangement in controversy.

Nothing could be plainer than that these old and well known valves are the exact equivalents, each for the other, in this combination or arrangement.

Transcript, p. 659.

Edward J. Hill
Solicitor for Appts

Office Supreme Court U. S.
FILED
MAR 19 1888
JAMES H. McKENNEY
CLERK

Supreme Court of the United States,

OCTOBER TERM, 1887.

No. 203.

JAMES FLOWER ET AL.,

APPELLANTS,

v.

CITY OF DETROIT ET AL.,

APPELLEES.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF MICHIGAN.

BRIEF FOR THE APPELLEES.

GEORGE L. ROBERTS,

Of Counsel for the Appellees.

BOSTON:
RAND AVERY COMPANY, PRINTERS.
1888.

Supreme Court of the United States,

OCTOBER TERM, 1887.

No. 203.

JAMES FLOWER ET AL.,

APPELLANTS,

v.

CITY OF DETROIT ET AL.,

APPELLEES.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF MICHIGAN.

BRIEF FOR THE APPELLEES.

GEORGE L. ROBERTS,

Of Counsel for the Appellees.

BOSTON:
RAND AVERY COMPANY, PRINTERS.
1888.

SYNOPSIS OF BRIEF.

Statement of the Case **1-14**

The Court below has found that the reissue in suit as to the first claim thereof is not for any invention disclosed by the original patent 1

The Court below has also found that the reissue in suit was taken after eight years delay during which the defendants and others had extensively used the invention set forth in the first claim thereof, and that it is invalid under the rulings of this Court in the case of *Miller* v. *Brass Co.* 1, 2

No charge of infringement has been made as to the second claim of the reissue in suit 2

The Court below has held that the subject matter of the third claim of the reissue was anticipated by prior structures and especially by that shown and described in the patent No. 19,206 granted to Race & Mathews, January 26, 1858 2

Comparison of original patent No. 75,344 and reissue No. 6,990 in parallel columns 3–7

The bill of complaint explicitly avers that the feature of the loose-case having capacity for end-play was not shown in the original patent, and that the amendment of the drawing and specification of the reissue is derived solely from the Patent-Office model 7, 8

This brings the case under the rulings of this Court in the recent case of *Parker & Whipple Co.* v. *Yale Lock Co.* (123 U.S. 87) 8, 9

Specification of patent No. 19,206, granted to Race & Mathews January 26, 1858 9–12

Comparison of the structure therein described and shown with that of Bailey's original patent 12

Both structures are alike except as to their valves. If therefore the third claim of the reissue in suit can receive the same interpretation as the second claim of the original patent, and if the puppet-valve of the Race & Mathews patent of 1858 is the equivalent for the cylinder-valve of

the Bailey patents; then the third claim of the reissue in suit was anticipated, — as the Court below held; but if there is no such equivalence, then the defendant's hydrants which contain puppet-valves cannot infringe upon the third claim of the reissue in suit, — as the Court below has also declared 13
Four defences to this suit specified 13, 14

The defendants' hydrants and the question of infringement . 15-17

Cuts showing the construction of the defendants' hydrants . 15
They have no cylinder-valve and do not embody any invention set forth in Bailey's original patent 16
Second and third claims of the reissue in suit are not infringed by the defendants 17

I. Reissue No. 6,990 not for the same invention as original patent No. 75,344 18-30

The invention described in original patent No. 75,344 . . 18
The invention interpolated into reissue No. 6,990 . . . 19

First claim of reissue for an entirely different invention from that shown or described in original patent 20
New function attributed to "casing C" 20
Third claim of reissue also, virtually new 21

Such a reissue is void according to the well settled law of this Court 21
Patent-Office model alone cannot justify reissue . . . 22

No sufficient proof that Bailey's Patent-Office model exhibited the invention in controversy 22–26

Patent-Office model burned Sept. 24, 1877 22
Its construction testified to by Bailey alone upon bare recollection, after sixteen and a half years' interval . . 22, 23
Exhibit Bailey's Original Model without leather washers exhibits only three thirty-seconds of an inch end-play of casing 23
Nine modes in which Patent-Office model may have varied to that extent, so as to deprive its casing of end-play . . 23, 24
Official letter of examiner, rejecting application of Race & Mathews, Dec. 17, 1868, on the ground that Bailey's Patent-Office model exhibited this invention, is deprived of its force by subsequent allowance of that application . 24, 25
Letter from M. D. Leggett & Co. to plaintiffs, Jan. 4, 1876, is hearsay of the second degree 26

Cunning and illegal attempt to provide for end-play of casing by manipulation of screw-joint between hydrant-stock and supply-pipe 26, 27
Such mal-adjustment of parts not applicable to a working structure 27, 28
Importance of evidence furnished by drawings of original patent 28
Presumption of law is that such drawings were correct . . 29
Testimony of Bailey alone is, under the circumstances, not sufficient to overcome that presumption 29, 30

Summary of first branch of defence 30

II. **Reissue No. 6,990 taken too late and with new and enlarged claims affecting adverse interests established long before** 31-47

Manufacture of Race & Mathews hydrants, embodying the invention in controversy at Lockport, N.Y., more than six months before Bailey's original application . . . 31, 32

357 sold before Bailey's original application, Sept. 16, 1867 . . 32
516 sold during the year 1867 32
Continuance of the manufacture by Helen M. Lloyd, Samuel R. C. Mathews and R. D. Wood & Co. 32
8,000 or 9,000 such hydrants so manufactured before Bailey's reissue 32
12,000 to 14,000 manufactured by R. D. Wood & Co. since then . 32

Manufacture of hydrants embodying the same invention by Boston Machine Company, from 1868 to 1883 . . 33

3,000 to date of reissue 33
1,000 afterwards 33

Hydrants so manufactured were sold and put into use all over the United States 33
Aggregate of 11,000 *or* 12,000 *hydrants, such as are now complained of as infringements, made and put into use, during eight or nine years preceding date of reissue in suit, by adverse parties* 33

269 such hydrants put into use by defendants during four years preceding reissue 34
40 per cent of whole number now complained of in this suit . . 34

Conduct of Thomas R. Bailey, Jr., shows no inadvertence, accident or mistake in his original patent . . . 34-46

Specification of his original application prepared from his own written instructions 34
He read it before signing and making oath to it . . . 35

He also read his original patent a few days after it issued . 35
Legal effect of his eight years' delay before procuring the reissue 36
The law of laches enunciated by the Supreme Court in *Miller* v. *Brass Co.* 37
Application of that law to the present case 38

Bailey not only delayed taking a reissue, but meanwhile, although knowing that others were practising the invention in controversy, stood by in silence, without asserting any adverse claim 38–41

Niagara Manufacturing Company's shop was near his, and he frequently visited it 39
He admits knowledge of manufacture of hydrants embodying this invention, at that shop, by Helen M. Lloyd, between August, 1868, and summer of 1869 39
He had abundant opportunity and good cause for knowing that such Race & Mathews hydrants were set in the streets of Lockport in 1867 and 1869 . . . . . 39, 40
For, in 1869 his own hydrants were rejected in favor of these Race & Mathews hydrants 40, 41
He admits seeing one such hydrant set in Lockport in 1869 or 1870 41
These circumstances, coupled with his admissions, aggravate the charge of laches against him 41
The reissue No. 6,990 procured by plaintiffs as a speculation . 42
Bill of complaint admits a state of facts inconsistent with any inadvertence, accident or mistake on the part of Bailey . 42
Presumption both of law and fact is that any discrepancy between drawing of original patent and Patent-Office model is an accident in the model and not an error in the drawing 43

The question is not whether the model differed from the drawing, but is whether the patentee *intended* to patent just what he described, showed and claimed . 43

Bailey obtained this reissue solely at the instigation of plaintiffs 43, 44
He did nothing about preparation of application therefor, except to sign and swear to it 44
Plaintiffs procured Bailey to obtain it, and purchased it as a fence against the Race & Mathews patent of 1869 . . 44, 45

Summary of second branch of defence 45, 46

Recent decisions of the Supreme Court following *Miller* v. *Brass Co.* 46, 47

III. Washburn Race and Samuel R. C. Mathews the first and original inventors of the structure in controversy; and not Thomas R. Bailey, Jr. 47-93

Early manufacture of hydrants by Race & Mathews under their patent No. 19,206, of Jan. 26, 1858 47

Exhibit Race, Mathews & Co. Lithograph, Oct. 3, 1860, showing their hydrants with detached casing having end-play but covered at the top 48

Race & Mathews old-style hydrants, with such inside sliding cases having from one and a half to two inches end-play, manufactured from 1860 to 1866 49

Put down with Lockport Water Works in 1863, and some of them still in existence there 49

Specific difference between such old-style hydrants and the new-style hydrants now in controversy was set forth in claim of Race & Mathews 1869 patent 50

Not so in first claim of Bailey's reissue here in suit . . 50, 51

Taken as it reads, it is anticipated by the Race & Mathews old-style hydrants of 1860-1866 51

The whole invention for which any room is left in the structure here in controversy consists merely in uncovering the top of the sliding casing of the Race & Mathews old-style 1860 *hydrant* 51

Manufacture of such old-style hydrants by Niagara Manufacturing Company from October, 1864, to early in 1866 . . 52

Exhibit Niagara Manufacturing Co. Lithograph altered by Race & Mathews to show the invention in controversy, either March 28, 1866, or April 4, 1866 52

Patterns for new-style hydrants, embodying the invention in controversy, made between May 24, 1866, and June 20, 1866 53

Sample hydrant made from such new patterns soon afterwards . 53

First sample new-style hydrant shipped Dec. 28, 1866 . . 53

"1 Fire Hydrant (new pattern)" shipped Jan. 21, 1867, and charged as sold to Winsor Bros. & Minnies, Oil City, Pa., Feb. 9, 1867 54

"1 Fire Hydrant (new pattern)" charged as sold to Jersey City Water Works, Feb. 11, 1867 54

Further proof of this new-style hydrant sold to Jersey City Water Works 54

Exhibit Race & Mathews Hydrant is one of eleven such new-style hydrants sold to Jersey City between March 21, 1867, and April 16, 1867 55

Hydrant of the same construction sold and charged to Elmira Water Works, Feb. 27, 1867 55

It was dug up in spring of 1876, and put in evidence as complainants' Exhibit 8 in *Mathews* v. *Boston Machine Co.* 55

Hydrant of same construction sold and charged to Utica Water Works, May 6, 1867 56

This hydrant was procured for Utica Steam Cotton Mill, and was set in its yard June 25, 1867, where it still remains. . . 56

Hydrant of same construction sold and charged to city of Lockport, N.Y., July 29, 1867 . . . . . 56, 57

It was set in front of O. C. & E. C. Wright & Co.'s store, where it still remains 57

This indicates established manufacture of these new-style hydrants by Niagara Manufacturing Company during the year 1867 . . . . . 57, 58

Continuation of such manufacture at the same shop by Helen M. Lloyd from August, 1868, to summer of 1869 . . 58

Manufacture of same kind of hydrants by Samuel R. C. Mathews, in Lockport, from summer of 1869 to spring of 1870 58

Further continuance of same manufacture by him and R. D. Wood & Co. in Philadelphia down to the present time . 58, 59

Contrasted conduct of Thomas R. Bailey, Jr., during this time 59–75

Bailey's shop in Lockport near that of the Niagara Manufacturing Company's 60

He finished his first hydrant the last of August or first of September, 1867. 60

It was set on Transit Street, in Lockport, after Nov. 11, 1867, 60

He afterwards made four or five more, to be put down on East Avenue and Washburn Street, under contract of James Fleming with the city of Lockport, July 6, 1869 . . 61

Race & Mathews, by letter of Aug. 16, 1869, threatened Fleming and the city, under their patent of Jan. 26, 1858, . 61

Bailey's hydrants were consequently rejected and Race & Mathews' new-style hydrants were put down instead . 61

Bailey's hydrants lay on the ground there for two or three years, and were finally taken back by him and broken up, 62
Bailey thereafter abandoned the manufacture of hydrants . 62
His attempted excuses therefor 62, 63
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He testifies falsely as to his knowledge of the manufacture and use of Race & Mathews hydrants, embodying the invention in controversy, in Lockport between 1868 and 1870 . . . . . 66, 67

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Race & Mathews patent No. 96,959, granted Nov. 16, 1869, after evidence of their manufacture early in 1867 had been submitted to the examiner 70
The suggestion that one of the affidavits submitted to the examiner has been suppressed, is absurd as well as irrelevant 71
Bailey knew that such a patent had been granted, and is legally chargeable with knowledge of its subject-matter . 72

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This date has nothing but his bare memory to rest upon . 78
Testimony of his brother-in-law, James E. Ferguson, is of like character and wholly unreliable as to date . . 79
George Bailey, his brother, testifies that this half-size hydrant was made from six to nine months after Exhibit Bailey's Original Model, which brings the date into the summer of 1867 . . . . . 79, 80
James Clapham saw it in the fall of 1867; and, considering that Thomas R. Bailey himself testifies that it was set up only about a year, this brings the date of its making forward to the fall of 1866 . . . . . 80, 81
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He was at a commercial college in Buffalo during the fall of 1865 and up to Dec. 7, 1865 81
He did not go to work for Bailey until spring of 1866 . . . 81
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And after that, *not earlier than the fall of 1866, he did lathe work on this half-size hydrant while it was making* 82, 83
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BRIEF FOR THE APPELLEES.

[DEFENDANTS IN THE COURT BELOW.]

Statement of the Case.

THIS is an action brought on a bill in equity against the defendants, (who are appellees herein,) for alleged infringement upon the patent REISSUE, No. 6,990, granted March 14, 1876, to Thomas R. Bailey, Jr., for Improvement in Hydrants, and procured by surrender of the original patent, No. 75,344, dated March 10, 1868.

The Court below has found in substance, that there is nothing in the original patent which lends support to the theory that the patentee was the inventor of what is made the subject matter of the first claim of the reissue in suit; and that the allegation of the complainants that such invention was embraced in the construction of the model which was filed in the Patent Office with the patentee's original application, but which has since been destroyed by fire, is not satisfactorily proved.

Opinion of JUDGE BROWN, pp. 653-656 (*Transcript of Record*).
Flower v. Detroit, 22 Fed. Rep. 292.

The Court below has also found in substance, that even assuming the subject matter of the first claim of the reissue in suit to have been described in the original patent, and to have been first invented by the patentee thereof, his omission to claim it in a reissue, for a period of eight years, during which these defendants and others had extensively practised the invention, operated as a practical abandonment of the same, and rendered invalid the reissue so taken therefor, in accordance with the

rulings of this Court in the case of *Miller* v. *Brass Co.*, 104 U. S. 350.

Opinion of JUDGE BROWN, pp. 656–658 (*Transcript of Record*).

The Court below did not have occasion to consider the second claim of the reissue in suit, because no charge of infringement thereon has explicitly been made either in the bill of complaint or in the evidence or in the arguments of counsel for complainants; and it is to be presumed that no such charge will be made before this Court. (*vide ut infra* pp. 16, 17.)

The Court below has held that the subject matter of the third and last claim of the reissue in suit was anticipated by prior structures, and especially by that shown and described in the patent No. 19,206, granted to Race & Mathews, January 26, 1858. (*vide ut infra*, pp. 9–13.)

Opinion of JUDGE BROWN, pp. 658, 659 (*Transcript of Record*).
Defendants Exhibit Race & Mathews 1858 patent, pp. 316–320 (*Transcript of Record*).

This decision as to the third claim of the reissue in suit was reached by so construing its terms as to make it identical with the second claim of the original patent, and by holding the puppet-valve of the Race & Mathews patent of 1858 to be the equivalent of the cylinder-valve, specified in the claim; but the Court below explicitly held that if there was no such equivalence, and therefore no such anticipation, then there was also no infringement by the defendants; so that in either case the complainants could not prevail.

Opinion of JUDGE BROWN, pp. 658, 659 (*Transcript of Record*).

In order to facilitate comparison between the original patent No. 75,344, and the reissue thereof No. 6,990, their specifications are here printed side by side with the differences between them indicated by italics; and a Patent-Office copy of the drawings belonging to each is here inserted.

T. R. Bailey Jr.
Hydrant.

No 75344 Patented Mar. 10, 1868

Fig. 1

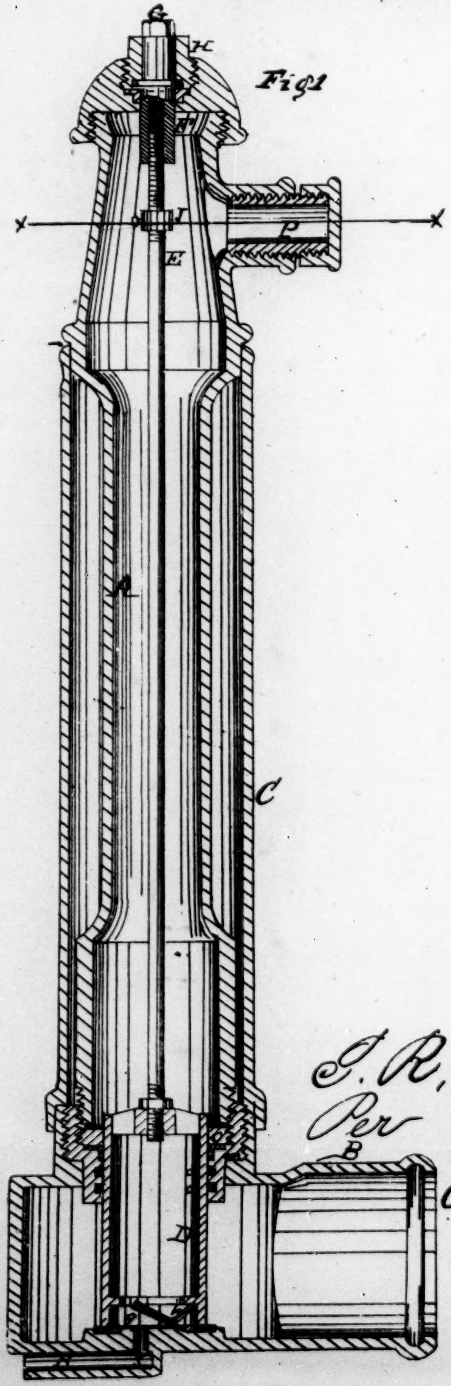
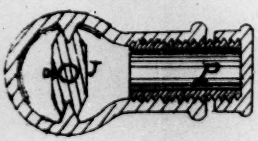


Fig. 2.



T. R. Bailey Jr.
Per Munn & Co
Attorneys

Witnesses
Theo Tusche
W. Irwin

Inventor

T. R. BAILEY, Jr.

HYDRANTS.

No. 6,990. Reissued March 14, 1876.

Fig 1 —

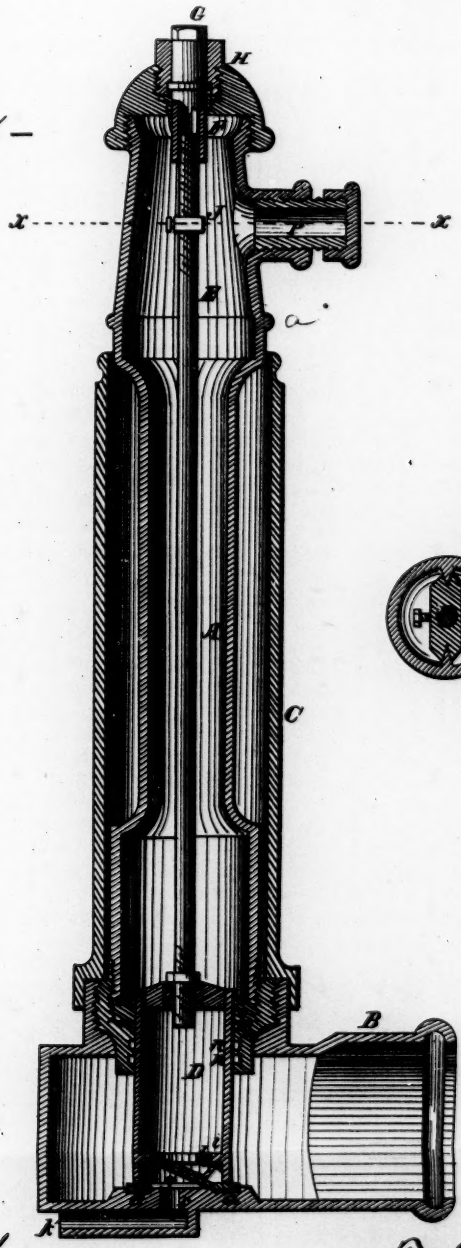
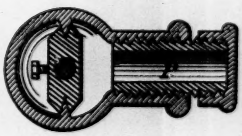


Fig 2 —



WITNESSES

E. J. Nottingham

Albert H. Knight

INVENTOR

T. R. Bailey Jr.

By Leggett & Leggett Attorney

ORIGINAL PATENT NO. 75,344.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the county of Niagara and State of New York, have invented a new and Improved Hydrant Fire-Plug; and I do hereby declare *that* the following *is* a full, clear, and exact description thereof, which will enable *those* skilled in the art to make and use the same, reference being had to the accompanying drawings, *forming* part of this specification.

This invention relates to *a new and improved method of constructing* fire-plugs or hydrants; *and the invention consists in operating a cylinder-valve in a suitable case, and in the arrangement and combination of parts connected therewith, as hereinafter described.*

Figure 1 represents a longitudinal central section of *the* hydrant, *showing the parts of which it is composed and the manner of their arrangement.* Fig. 2 *is* a cross-section of *Fig. 1* through *the* line x x.

Similar letters of reference indicate corresponding parts.

A represents the hydrant-tube, from which *the* water is discharged. **B** is the horizontal section, which is connected with the "water-main," and which forms the valve-chamber.

C is a loose casing around the hydrant-tube, *for protecting the tube from dirt, &c.*

REISSUED PATENT NO. 6,990.

To all whom it may concern:

Be it known that I, T. R. Bailey, Jr., of Lockport, in the county of Niagara and State of New York, have invented a new and Improved Hydrant Fire-Plug; and I do hereby declare the following *to be* a full, clear, and exact description thereof, which will enable *others* skilled in the art *to which my invention relates* to make and use the same, reference being had to the accompanying drawing *which forms a* part of this specification.

This invention relates to *improvements in the construction of* fire-plugs or hydrants.

In the drawing, Figure 1 represents a longitudinal central section of *a* hydrant *according to my invention;*

Fig. 2, a cross-section of *the same* through lines x x *of Fig. 1.*

My invention consists in the following parts and combinations, as hereinafter specified and claimed, wherein

A represents the hydrant-tube from which water is discharged. **B** is the horizontal section which is connected with the water-main, and which *may* form the valve-chamber.

C is a loose *movable* casing around the hydrant-tube.

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D is the cylinder-valve, *which has* its seat at its lower end *on* elastic *or leather* packing secured in a groove, as *seen in the drawing* at **a**. **E** is a rod having a screw-thread on its upper end, by which the valve is operated. **F** is a sleeve-nut, *which engages* with the screw on the rod, *raising* and lowering *it* as the nut is turned. This nut is turned by a wrench on the head **G**.

The sleeve-nut is *secured* in the cap of the hydrant by a collar and packing under the hollow-cylinder stuffing-box **H**, *as seen in the drawing*. **J** is a yoke, which is attached to the rod **E** by a set-screw, and *which* is *secured* in the tube **A**, and prevented from turning, as it moves up and down, by projecting lugs, as *seen in* Fig. 2; *and* it will be *seen* that the arrangement is such that the rod and valve may be raised and lowered without being rotated. *This secures* a uniform and perfect bearing of the valve on its seat, the packing **a** remaining undisturbed.

Provision is made for the discharge of the waste-water by an orifice beneath the valve **D**, *marked* **f**, which orifice is opened and closed by a valve *marked* **g**, *as seen in the drawing*. **h** is a wing *on* the top of this valve.

As the cylinder-valve **D** descends the annular flange **i** on its inside *strikes* the wing **h**, *and* raises the valve as *seen* in the drawing, *thus allowing* any water which may re-

REISSUED PATENT NO. 6,990.

D is the cylinder-valve, *having* its seat at its lower end, *upon suitable* elastic packing secured in a groove, as *shown* at **a**. **E** is a rod having a screw-thread on its upper end, by which the valve is operated. **F** is a sleeve-nut *engaged* with the screw-*nut* on the rod *E*, *lifting* and lowering *said rod* as the nut is turned *one way or another*. This nut is turned by a wrench *or crank, or other suitable device* on the head **G**.

The sleeve-nut is *screwed* in the cap of the hydrant by a collar and packing, under the hollow cylinder stuffing-box **H**. **J** is a yoke which is attached to the rod **E** by a set-screw *or its equivalent*, and *it* is *screwed* in the tube **A**, and prevented from turning as it moves up and down by projecting lugs, as *shown in detail at* Fig. 2.

It will be *noticed* that the arrangement is such that the rod and valve may be raised and lowered without being rotated, *thus securing* a uniform and perfect bearing of the valve on its seat, the packing **a** remaining undisturbed.

Provision is made for the discharge of the waste water by an orifice **f**, beneath the valve **D**, which orifice is opened and closed by a valve **g**. A wing **h**, is *provided upon* the top of this valve.

As the cylinder-valve **D** descends the annular flange **i** on its inside *striking* the wing **h**, raises the valve, as *shown* in the drawing, *and allows* any water which may remain in the

ORIGINAL PATENT NO. 75,344.

main in the hydrant to escape through the orifice **f** and aperture *k*.

It will thus be seen that no water will be left in the hydrant to freeze in cold weather.

The tube ***A*** is secured to the horizontal section **B** by a ring-nut **m**, which contains recesses for packing-rings around the valve, as *seen* at **n** ***n***. Packing *around* the valve is also secured by another ring-nut **o**, and also under the end of the tube **A**, as *seen* in the drawing.

P represents the discharge-pipe with a screw for the attachment of the *hose*, and a cap-piece for covering the pipe when the hydrant is not in use.

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hydrant to escape *down* through the orifice **f** and aperture ***K***, *thus preventing any retention of water above the freezing level.*

The tube ***A′*** is secured to the horizontal section **B** by a ring-nut **m**, which contains recesses for packing-rings around the valve, as *shown* at **n**. Packing *about* the valve is also secured by another ring-nut **o**, and also under the end of the tube **A**, as *shown* in the drawings.

P represents the discharge-pipe, with a screw for the attachment of the *base*, and a cap-piece for covering the pipe when the hydrant is not in use.

*It will be observed that the casing **C** loosely rests upon the main **B**, or upon a branch projecting upward from the same. This casing extends upward, enveloping the main portion of the water-pipe **A**, — at least that portion which is subterranean. Said casing extends upward and fits loosely about the plug or hydrant at the portion **A′**. Above the upper terminus of the casing **C** is provided the bead **a** upon the hydrant proper. Sufficient space is left between the bead **a** and the upper terminus of the casing **C** to permit of sufficient up-and-down play of the said casing **C**, for the purpose which will hereafter more fully appear. This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base.*

ORIGINAL PATENT NO. 75,344.

Having thus described my invention, I claim *as new and desire to secure by Letters Patent* —

1. A hydrant or *water*-plug, *constructed substantially as shown and described — that is to say, with the parts* **A** *and* **B** *connected together, as shown, and* with *a* cylinder-valve and *a* waste-*water* valve connected and operated in combination, substantially as herein *specified.*

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The main function of the casing ***C*** *is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug. This process of freezing causes the surrounding earth, by its expansion, to lift or upheave, and thus be liable to derange the hydrant or plug. This upheaval or movement is received by the casing* ***C****, which, by its capability of sliding loosely up and down, will accommodate the upheaval of the earth above mentioned, without any liability to derange the plug or hydrant. This is the chief function of the casing* ***C****, although it likewise serves the purpose of protection to the water pipe* ***A****.*

What I claim *is* —

1. *In combination with a hydrant or fire-plug, a detached and surrounding casing* ***C****, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown.*

2. In combination with a hydrant or *fire*-plug *pipe* **A**, *the supply-pipe* **B**, *and* cylinder-valve and waste-valve, connected and operated substantially as herein *shown and described.*

ORIGINAL PATENT No. 75,344.	REISSUED PATENT No. 6,990.
2. *The arrangement of the parts* **A B**, valve **D**, case **C**, and stuffing-box **H**, as *herein described*, for the purpose *specified*. T. R. Bailey, Jr.	3. *The combination of the hydrant or fire-plug pipe* **A**, *supply-pipe* **B**, valve **D**, cas*ing* **C**, and stuffing-box **H**, *substantially* as *and* for the purpose *shown*. T*homas* R. Bailey, Jr.

Exhibit Bailey's Original Patent pp. 49–52 (*Tr. Rec.*).
Exhibit Bailey's Reissue pp. 52–55 (*Tr. Rec.*).

Inspection and comparison of the foregoing specifications will enable this Court to determine at once the soundness of the decision of the Court below in respect to the invalidity of the reissue in suit, as to the subject matter of the first claim thereof.

Indeed the bill of complaint itself sets forth such grounds for obtaining this reissue and such conditions under which it was obtained, that a demurrer thereto would undoubtedly have been sustained at the outset of this suit; for, the complainants explicitly state therein that what is now made a distinguishing feature of the structure described and claimed in the reissue, namely, an outside case having end-play to accommodate the upheaval of the earth by frost, was not shown in the drawing of the original patent; and that the amendment of the drawing and specification of the reissue in this particular was derived from the model deposited in the Patent Office with the original application.

The averment of the bill of complaint is as follows:

"And your orators further show, that on or about the 1st day of February, A.D. 1876, your orators then being about to acquire an interest in said invention under said letters patent, only by the aid of skilful solicitors learned in the law, and after careful examination of the letters patent, and the papers and model on file and deposit in said Patent Office with the said application of the said Thomas R. Bailey, Jr., therefor, first learned that said letters patent were inoperative and invalid by reason of a defective and insufficient specification, *and that the defect and insufficiency therein*

arose from a discrepancy or difference between the drawing forming a part of said specification and the model aforesaid; that one of the distinguishing features of said invention consists in a loose case around the tube or upright part of the hydrant, connecting the same with the water main or horizontal part thereof, fitting the same like a sleeve, resting when in proper position, with its lower end upon the water main, or flange thereof below, so as to slip up on the said tube, *which feature is fully shown and properly exhibited in and by the said model, but which feature was not shown in said drawing*, for the reason that said drawing was made by the attorneys of said Thomas R. Bailey, Jr., from said model with the said case accidentally out of its proper position, so that in the said drawing the said case is represented as not only resting on the water main or flange thereof below, but as coming up flush with the flange above it on the tube of the hydrant, and *that while the model shows the said case as loose because of its having an end play up and down on, and forming a part of the hydrant* connecting the tube and water main together as aforesaid, *yet the said drawing showed the said case*, though forming a part of the hydrant, connecting the tube and water main together, *as being confined at the top as well as at the bottom, so as not to be a loose case and as not to have such end play*, and that your orators on thus learning of the said facts, at once informed the said Thomas R. Bailey, Jr., thereof, who then and thereby first discovered the said defect in and insufficiency of said specification, as your orators are informed and verily believe and so state the fact to be."

Bill of Complaint, p. 10 (*Tr. Rec.*).

It is manifest that no proper grounds for such a reissue are here set forth; but in view of a very recent decision of this Court as to the use which may and may not be made of a Patent Office model for the correction of a patent, the express admission of the bill of complaint that this invention was not shown in the original patent, is fatal.

This Court speaking by Mr. JUSTICE BLATCHFORD, in the case of *Parker and Whipple Co.* v. *Yale Lock Co.* (123 U.S. 87, 98, 99) and referring to the opinion delivered in the former case of *Seymour* v. *Osborne* said:

"In these extracts from the opinion it is seen that the court adheres strictly to the view, that, under the statute, the Commissioner has no jurisdiction to grant a reissued patent for an invention substantially different from that embodied in the original patent, and

Race & Mathews.

that a reissue granted not in accordance with that rule is void. In what is there said about redescribing the invention, and about including in the new description and new claims what was suggested or indicated in the original specification, drawings or patent office model, it is clearly to be understood, from the entire language, that the things so to be included are only the things which properly belonged to the invention as embodied in the original patent; that what that invention was is to be ascertained by consulting the original patent; and that, while the new description may properly contain things which are indicated in the original specification, drawings or patent office model, (though not sufficiently described in the original specification,) it does not follow that what was indicated in the original specification, drawings or patent office model is to be considered as a part of the invention, unless the court can see, from a comparison of the two patents, that the original patent embodied, as the invention intended to be secured by it, what the claims of the re-issue are intended to cover."

In order to present conveniently the grounds of decision of the Court below as to the third claim of the reissue in suit, the specification of the patent No. 19,206 granted to Race & Mathews, January 26, 1858, is here reproduced, — the portions of the description relating to the jacket being put in italics; — and a Patent Office copy of the drawings belonging thereto is also here inserted.

"SPECIFICATION OF LETTERS PATENT NO. 19,206, DATED JANUARY 26, 1858.

To all whom it may concern:

Be it known that we, Washburn Race and S. R. C. Mathews, of Seneca Falls, in the County of Seneca and State of New York, have invented a new and improved Hydrant, and we do hereby declare that the following is a full, clear and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which

Fig. 1 is a vertical central section of our improvement.

Fig. 2 is a horizontal section of our improvement, taken in the line X X, Fig. 1.

Fig. 3 is a detached view of the annular valve.

Fig. 4 is a detached side view of the device by which the valve rod is operated.

Fig. 5 is a detached view of the wrench.

Similar letters of reference indicate corresponding parts in the several figures.

The invention consists, second, in a novel construction and arrangement of valves whereby the waste pipe or orifice is opened as the induction pipe is closed, and *vice versa*, and the perfect operation of the valves ensured, both being operated by a single lever or wrench.

The invention consists, third, in a peculiar construction and arrangement of parts, as hereinafter shown, whereby the hydrant may be readily detached from its base and removed or withdrawn without the trouble and expense of excavating.

To enable those skilled in the art to fully understand and construct our invention we will proceed to describe it.

A represents the case of the hydrant, the upper part of which **a** may be of any appropriate and ornamental form, provided with one or more horizontal nozzles **B**. The lower part **b** of the case is smaller in diameter than the upper part and is of cylindrical form; the part **b** is below the surface of the ground and the part **a** above it.

The lower part **c** of the part **b** of the case is enlarged somewhat in diameter and an annular valve **B′** is fitted therein. This valve is formed of a flat ring **d** grooved circumferentially in its exterior surface to receive a packing **e**, which may be made of leather or other suitable material. The ring **d** is provided with a cross-bar **f**, having a hub or boss **c′** at its center in which the lower part of a rod **C** is fitted, said rod having a shoulder **g** formed on it which serves as a bearing for the upper edge of the hub or boss, and a nut **h** is placed on the rod below the hub or boss, said nut fitting on a screw thread. By turning the nut in the proper direction the valve **B′** may be firmly secured on the rod. Through the ring **d** of the valve **B′** a screw **i** passes, said screw passing through the ring at a point directly opposite an opening **j** in the part **c** of the case.

The lower end of the part **c** has a screw thread formed on it and is screwed into the upper end of a curved or bent pipe **D**, which is fitted permanently in the ground and communicates with the "main." The upper end of the pipe **D** is provided with a flanch **k** and a small spout or nozzle **l**. *The flanch* **k** *extends all around the pipe,* **D** *and it receives the lower end of a cylindrical jacket* **E**, *which is permanently fitted in the ground.* An annular piece of packing **m** is interposed between the upper end of the pipe **D** and the lower end of the part **c** of the case.

Within the lower part of the part **c** of the case a screw thread is formed to receive an annular valve seat **F**, said seat being screwed into the lower end of **c**.

G represents a valve which is formed of two parts **n o**, the part **n** being of cup form and containing a nut **p** by which the valve **G** is secured to the lower end of the rod **C**, a screw thread being on the lower end of

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the rod. The other part **o** of the valve is a cap which is screwed down upon a packing **q**, which, when said valve is closed, bears against the seat **F**, as plainly shown in Fig. 1. The valve **G** is allowed to turn freely on the rod **C**.

Around the outer side of the part **c** of the case **A** a groove **r** is made, said groove being in the same plane with the opening **j** in the part **c** and the spout or nozzle **l** on the pipe **D**.

The lower end of the upper part **a** *of the case* **A** *is provided with a flanch* **s** *which fits over a flanch* **t** *on the upper end of the jacket* **E**.

In the upper end of the part **a** of the case **A** there is screwed a cap **H**. The cap **H** is screwed into a recess **u** in which packing **v** is placed, the above parts forming a stuffing-box.

To the upper end of the rod **C** a yoke **I** is attached and a cam or eccentric **J** is fitted within the yoke. The cam **J** is placed upon a shaft **K**, which has its bearings in a flanch **a′** on the upper part **a** of the case **A**. One end of the shaft **K** projects beyond the edge of the flanch and has a square formed on it to receive a wrench **L**, shown in Fig. 5. The sides of the yoke **I** are slotted vertically, as shown at **b′**, Fig. 4, the shaft **K** passing through said slots.

The yoke **I** is covered by a cap **M**, the lower edge of which is provided with a flanch **a″** which is fitted on a flanch **a′** of the case and secured to it by screw bolts.

The ring **d** of the annular valve **B′** may be provided with lugs **e″**, as shown in Fig. 3, said lugs fitting in grooves in the case in order to prevent the valve from turning casually.

The wrench **L** has a fork at each end, — one fork fitting the square on the shaft **K**, and the other fork fitting the nut **p**. The upper end of the cap **H** also has grooves or recesses made in it to receive one end of the wrench **L** for the purpose of turning the cap.

The operation is as follows: —

By applying the wrench **L** to the square on the shaft **K** the cam or eccentric **J** may be turned without raising or moving the cap **M**, and the rod **C** may be raised and lowered thereby. When the rod **C** is raised the valve **G** bears against its seat **F** and the water from the "main" is prevented from passing into the case **A** of the hydrant. And when the valve **G** is closed the valve **B′** is above the opening **j** and therefore the water within the case **A** may pass out through the opening **j** into groove **r** and out at spout or nozzle **l**. When the rod **C** is lowered the valve **G** opens and the annular valve **B′** passes over the opening **j**, closing the same while the water from the "main" passes up through the seat **F**, through the case **A** and out through nozzle **B**. Thus it will be seen that when the water is admitted into the case the escape passage **j** is closed, and when the water is shut off the said passage **j** is opened. *In case any of*

the parts require to be repaired the whole hydrant may be raised, the jacket remaining stationary, by merely unscrewing the lower part of **c** *from the upper end of the pipe* **D**. *This is effected, of course, by turning the case* **A**. *By this means no excavating is necessary in order to repair the hydrant, as it may be removed and replaced without difficulty.*

We do not claim broadly, for we are aware that hydrants have been constructed and their parts arranged in various ways so that they could be removed for repairs without excavating, the parts being rendered capable of being withdrawn from the case; but we are not aware that an arrangement like ours has ever been used for effecting the purpose. *Neither do we claim the casing of hydrants when the case and base or pipe* **D** *are in one piece and permanently attached to the pipe from the "main," as that has been previously done.* Neither do we claim separately the arrangement of the valves **B′ G**, but we claim,

1st. The annular valve **B′** and the disk valve **G** attached to the rod **C**, in combination with the escape or leak opening **j** and seat **F**, the above parts being arranged to operate as and for the purpose set forth.

2d. *The combination of the case* **A**, *induction pipe* **D**, *provided with flanch* **k**, *and the jacket* **E**, *when arranged as herein shown and described to effect the desired end, to wit, the ready removal, when necessary, of the case and working parts of the hydrant for repairs.*

WASHBURN RACE.
S. R. C. MATHEWS.

See Defendants Exhibit Race & Mathews 1858 patent pp. 316–320 (*Tr. Rec.*).

Comparison of the structure shown and described in this Race & Mathews patent of 1858, with the structure shown and described in the original Bailey patent of 1868, discloses no substantial difference between them in so far as concerns the construction and arrangement of the hydrant-tube, the supply-pipe, the jacket or surrounding casing and the stuffing-box near the upper end of the valve-rod.

But the main valve of the Race & Mathews hydrant is a puppet-valve, substantially the same as that of the defendants hydrants complained of as infringements in this case; while the main valve of the Bailey hydrant is a cylinder-valve, which could not be substituted for a puppet-valve without material alteration in the parts which co-operate therewith.

Race & Manners.

Hydrant.

No 19,206. Patented Jan. 26. 1858

Fig 5.

Fig 1.

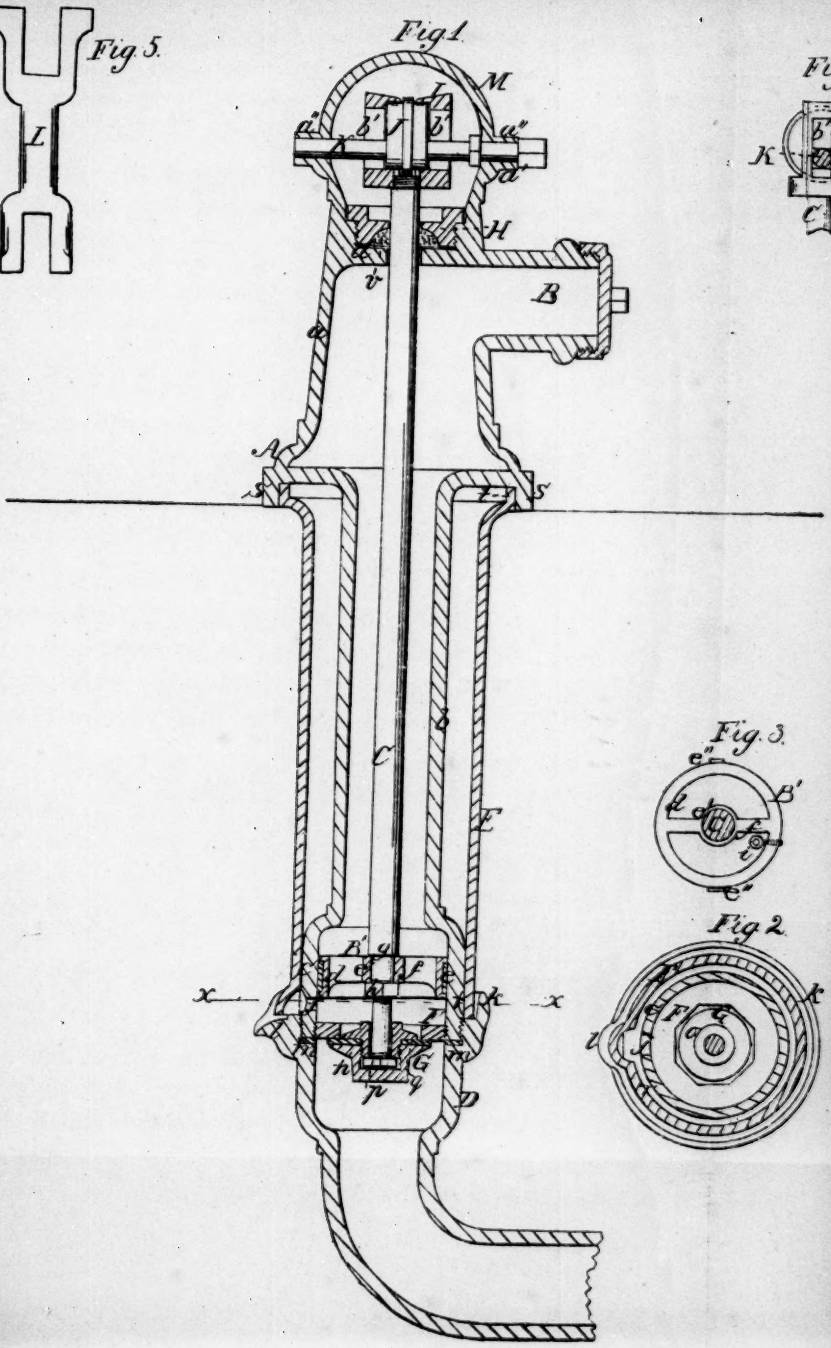


Fig 4.

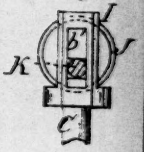


Fig 3.

Fig 2.

In both structures, however, the jacket or casing surrounding the hydrant-tube, is confined between the upturned end of the supply-pipe and an annular projection upon the body of the hydrant proper; so that while it is separate and detached from both the supply-pipe and the hydrant-tube, and protects the latter from dirt, it has no capability of independent longitudinal movement.

If, therefore, the third claim of the reissue in suit can receive the same interpretation as the second claim of the original patent No. 75,344, and if a puppet-valve may be held to be the equivalent of the cylinder-valve described and shown in these patents; then such claim is undoubtedly anticipated by the Race & Mathews patent No. 19,206, of January 26, 1858, — as the Court below has held.

On the other hand if the puppet-valve of the Race & Mathews patent of 1858, which is substantially the same as that contained in the defendants hydrants complained of, is not the equivalent of the cylinder-valve referred to in the third claim of the reissue in suit then there is no infringement, — as the Court below has expressly stated in its judicial opinion.

The foregoing is a statement of the case as it is made by the decision of the Court below; but it does not cover all of the defences which have been pleaded and proved on behalf of the defendants; nor does it set forth the defences of which it treats as fully and strongly as they may be presented.

These will now be taken up in detail and in the following order:

First. — The reissue sued upon is not for the same invention as was the original patent, but is for an entirely different invention, not described, shown or suggested in the original patent.

Defendants' Answer, Paragraphs 9, 10 and 11, pp. 19, 20 (*Tr. Rec.*).

Second. — The reissue sued upon was not taken until eight years after the original patent, and was procured with new and enlarged claims for the purpose of covering structures which had meantime been put into extensive use by these defendants and others, and which had not been embraced by any claims of the original patent.

Defendants' Answer, Paragraphs 12, 13, 14, and 15, pp. 20–24 (*Tr. Rec.*).

Third. — The invention attempted to be claimed and patented in and by the reissue sued upon, had been originated, reduced to practice and put into public use by others before the same had ever been conceived by the plaintiffs' assignor.

Defendants' Answer, Paragraph 20, p. 26 (*Tr. Rec.*).
Amendment to Defendants' Answer, Paragraphs 21, 22, 23, pp. 34, 35 (*Tr. Rec.*).

Fourth. — The first claim of the reissue sued upon, which alone can be construed to embrace anything contained in the defendants' structures complained of, is substantially the same in terms and identically the same in meaning, as the claim of another patent which has already been held by the Supreme Court of the United States to have been anticipated by certain structures existing long prior to both patents and incontrovertibly proved in the present case.

Exhibit Supreme Court Decision, pp. 338 (*Tr. Rec.*).
Defendants' Answer, Paragraph 20, p. 26 (*Tr. Rec.*).

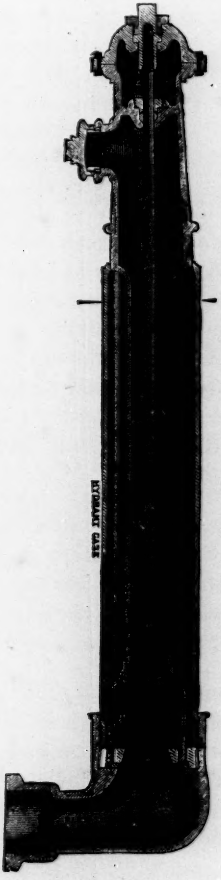
Before proceeding, however, to the consideration of these defences it will be well to explain the construction of the defendants' hydrants complained of and to discuss briefly the question of infringement.

The defendants' hydrants and the question of infringement.

The construction of the defendants' hydrants is illustrated by the following cuts.

Side Elevation.

Vertical Section.



It will be seen therefore upon inspection that such a structure does not embody the invention set forth in the original patent No. 75,344, granted to Thomas R. Bailey, Jr., March 10, 1868; for it does

not contain a cylinder-valve which constitutes the distinguishing feature of the combinations specified in the two claims of that patent.

The puppet-valve of the hydrant used by the defendants and the cylinder-valve of the hydrant described in Bailey's original patent No. 75,344, have nothing in common, except that they both serve to let on and shut off water from the supply pipe. They are constructed differently, operate differently, and cannot be substituted, one for the other, without reorganizing the whole structure with which they are respectively combined.

Moreover, if the distinction between the cylinder-valve of Bailey's original patent and the puppet-valve of the hydrant used by the defendants is to be disregarded; then there is no reason why the differences between the waste-water valves in the two structures should not likewise be ignored; and the result would be that under such an interpretation the combinations specified in the claims of that patent could not substantially be distinguished from what was described and shown in the patent No. 19,206, granted to Race & Mathews, January 26, 1858.

But it appears upon the face of Bailey's original patent itself that the specific feature of a cylinder-valve was intended to constitute an essential element of the invention therein set forth; for the specification explicitly states that, "*the invention consists in operating a cylinder-valve in a suitable case and in the arrangement and combination of parts connected therewith as hereinafter described*"; and this valve is specifically designated in each of the claims as "a cylinder-valve" and as "valve D" respectively.

Hence it results that the defendants' hydrants do not embody the invention set forth in Bailey's original patent; and that in so far as the reissue in suit is for the same invention as that original patent it is not infringed by the defendants.

The second claim of the reissue in suit is as follows: —

"2. In combination with a hydrant or fire-plug pipe A, the supply-pipe B, and cylinder-valve and waste-valve, connected and operated substantially as herein shown and described."

Exhibit Bailey's Reissue pp. 54, 55 (*Tr. Rec.*).

This is the same combination which is specified in the first claim of the original patent, and it embraces as its constituent elements, the hydrant-tube A, the supply-pipe B, the cylinder-valve D, the waste-valve *g* and the ring-nut *m*, by means of which the parts are connected together so as to be operative.

Henry B. Renwick, Q. 10, pp. 346–349 (*Tr. Rec.*).

It is manifest that the hydrants used by the defendants do not contain either the cylinder-valve D or the waste-valve *g* or the ring-nut *m*, nor the equivalent of either of them.

The third claim of the reissue in suit is as follows: —

"3. The combination of the hydrant or fire-plug pipe A, supply-pipe B, valve D, casing C, and stuffing-box H, substantially as and for the purpose shown."

Exhibit Bailey's Reissue, p. 55 (*Tr. Rec.*).

This claim, however, although stated in substantially the same phraseology as the second claim of the original patent, cannot be regarded as virtually the same in meaning, unless the "casing C" of the one like the "case C" of the other be taken to be only such a casing as is described and shown in the original patent, and not to have those additional features and functions which are attributed to it by the reissue in suit.

But whether the two claims are so held to be identical in meaning or not, the hydrants used by the defendants do not embrace the invention referred to in the third claim of the reissue in suit; because they do not have the "valve D" specified therein nor any equivalent therefor.

Henry B. Renwick, Q. 16, pp. 350, 351 (*Tr. Rec.*).

To be sure, if the puppet-valve of the defendants' hydrants could properly be held to be the equivalent of the valve D in the combination specified in the third claim of the reissue in suit; then, as the Court below has found, the subject matter of the claim would be anticipated by the structure described and shown in the patent No. 19,206, granted to Race and Mathews, January 26, 1858; so that either interpretation of this claim is equally fatal to the complainants.

The other defences will now be taken up in the order already indicated.

I. Reissue No. 6,990 not for the same invention as original patent No. 75,344.

In the original patent, No. 75,344, it is said that "*the invention consists in operating a cylinder-valve in a suitable case, and in the arrangement and combination of parts connected therewith, as hereinafter described.*"

Then follows a description which is wholly concerned with the cylinder valve, the means for operating it, the mode of packing it, the arrangement of the waste-water valve within it, and its combination with the ring-nut by which the hydrant-tube and the branch of the water-main are connected together.

There is only the briefest incidental mention of the hydrant jacket or surrounding case, in these words: "*C is a loose casing around the hydrant-tube, for protecting the tube from dirt, etc.*"; and there is not the slightest hint or intimation that this loose casing C possesses any peculiarity of construction or function which characterizes the invention described or intended to be patented.

The drawings are referred to in the specification as follows: —

"*Figure* 1 *represents a longitudinal central section of the hydrant, showing the parts of which it is composed and the manner of their arrangement.*"

And, upon inspection of these drawings, it appears that the part designated C is represented as a detached case or jacket surrounding the hydrant-tube or stock, resting at the bottom upon an upward projection from the branch of the water-main and confined at the top by a bead immediately above it on the body of the hydrant, so that the specific mention of the "case C" in the second claim of this original patent as one among several parts of which the "arrangement" is claimed, "as herein described, for the purpose specified," can signify nothing else than that it is, in the language of the only description there is of it, "a loose casing around the hydrant-tube, for protecting the tube from dirt, etc.," and that its "arrangement" is as represented in the drawings, so as to be incapable of any end-play or up-and-down motion.

Moreover, the cylinder-valve, with the description of which the specification of this original patent is chiefly concerned, and which is stated at the outset to be the main feature of the invention intended

to be described and patented, enters as an element into the combinations specified in both claims.

Exhibjt Bailey's Original Patent, pp. 49–52 (*Tr. Rec.*).

On the other hand, the reissue No. 6,990 omits the statement of the original patent that the invention consists of a cylinder-valve and other parts connected therewith, and merely refers to the subject-matter of the claims thereinafter recited. Thus it says: "*My invention consists in the following parts and combinations, as hereinafter specified and claimed.*"

And thereupon this reissue proceeds to interpolate into the old description of the original patent concerning the cylinder valve and its connections, an entirely new description as to the construction and functions of the hydrant jacket. First it says: "*C is a loose* MOVABLE *casing around the hydrant-tube*"; whereas, the original patent did not describe it as a movable casing, and in fact showed by the drawing that such casing was incapable of endwise motion.

Then, at the close of the descriptive part of the specification, this reissue adds a new description of the casing and proceeds to develop its capacities and offices as follows: —

"*Sufficient space is left between the bead* **a** *and the upper terminus of the casing* **C**, *to permit of sufficient up-and-down play of the said casing* **C**, *for the purpose which will hereafter more fully appear.*

This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base.

The main function of the casing **C** *is to prevent derangement of parts during cold weather by the ground alternately freezing and thawing around the hydrant or plug.*" . . .

"*This upheaval or movement is received by the casing* **C**, *which, by its capability of sliding loosely up and down, will accommodate the upheaval of the earth above mentioned, without any liability to derange the plug or hydrant.*

This is the chief function of the casing **C**, *although it likewise serves the purpose of protection to the water pipe* **A**."

And accordingly, in order to fit this new description of the hydrant casing or jacket, the drawings of the reissue have been made to differ

essentially from the drawings of the original patent, in that the drawings of the reissue represent considerable space as intervening between the top of the casing and the bead upon the body of the hydrant; whereas in the drawings of the original patent this bead was represented as located close above the top of the casing in such manner as entirely to prevent any end movement whatsoever.

Exhibit Bailey's Reissue, pp. 52–55 (*Tr. Rec.*).

Not only so, but the new matter so interpolated into the description and drawings of this reissue is made the special subject of the first claim thereof, which is in these words: —

"What I claim is: —

"1. In combination with a hydrant or fire-plug, a detached and surrounding casing C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown."

Exhibit Bailey's Reissue, p. 54 (*Tr. Rec.*).

Such a claim would have been entirely meaningless if appended to the specification of the original patent; because the construction shown in that patent utterly precluded the casing C from having any capacity of independent up-and-down motion, or from performing the function of receiving the movement imparted by the upheaval of the surrounding earth by freezing without disturbance of the hydrant proper.

See Thomas R. Bailey, Q. 40, p. 70 (*Tr. Rec.*); C. Q. 161, p. 81 (*Tr. Rec.*).

The only function which the original patent describes the casing C as performing, and the only one of which the drawings of the same patent show it to be capable, is that of protecting the hydrant-tube from dirt; and this function is mentioned in the reissue as simply incidental and secondary.

It results, therefore, that the subject-matter of invention so interpolated into the reissue No. 6,990 by additional description and altered drawings was neither described, nor shown, nor suggested nor intimated in the original patent No. 75,344, and constituted no part of the invention for which that original patent was granted.

See Henry B. Renwick, Q. 5, pp. 343–345 (*Tr. Rec.*).

Furthermore, the third claim of this reissue is open to the same objection, because, one of the elements of the combination therein specified is the "casing C," which as described in the specification and shown in the drawings of the reissue is a very different structure from that so designated in the original patent.

Henry B. Renwick, Q. 6, p. 345 (*Tr. Rec.*).

Attention has already been called to the fact that the complainants in and by their bill of complaint explicitly declare that the original patent No. 75,344 did not show the invention of a loose case having end-play, and that these features which are described and shown in the reissue No. 6,990, here in suit, as characteristics of the invention claimed therein, were derived wholly from the model deposited in the Patent Office with the application for the original patent. (*ut supra* pp. 7, 8.)

And the views of this Court set forth in the case of *Parker & Whipple Co.* v. *Yale Lock Co.* (123 U. S. 87, 98, 99) have also been referred to, as disposing of the questions raised upon such a declaration in the bill of complaint. (*ut supra* pp. 8, 9.)

Other decisions which may properly be mentioned in this connection are the following:

Powder Co. v. *Powder Works*, 98 U.S. 126, 137–139.
Ball v. *Langles*, 102 U.S. 128, 130, 132.
Manufacturing Co. v. *Ladd*, 102 U.S. 408, 413, 414.
Manufacturing Co. v. *Corbin*, 103 U.S. 786, 791, 792.
James v. *Campbell*, 104 U.S. 356, 370, 378.
Heald v. *Rice*, 104 U.S. 737, 753.
Johnson v. *Railroad Co.*, 105 U.S. 539, 547.
Gosling v. *Roberts*, 106 U.S. 39, 47.
Wing v. *Anthony*, 106 U.S. 142, 147.
Moffitt v. *Rogers*, 106 U.S. 423, 428.
Hoffheins v. *Russell*, 107 U.S. 132, 141.
McMurray v. *Mallory*, 111 U.S. 97, 103.
Torrent Co. v. *Rodgers*, 112 U.S. 659, 667–669.
Coon v. *Wilson*, 113 U.S. 268, 277, 278.
Eachus v. *Broomall*, 115 U.S. 429, 438.
Ives v. *Sargent*, 119 U.S. 652, 662, 663.

It is manifest, therefore, that even if the model filed by Thomas R. Bailey, Jr., with his original application did in fact exhibit the invention for which the reissue in suit has been taken; the statute did not authorize any such amendment of the drawings of the original patent, as incorporated into them an invention which they did not show before; much less any such amendment of the language of the specification, as described an invention not set forth and specified in the original patent. The express limitation of the statute to "*a new patent for the same invention*," and the peremptory declaration that "*no new matter shall be introduced into the specification*," utterly preclude the interpolation into the reissue of a drawing so altered from the original as to represent a different invention, and of a specification so amended as to describe and claim a structure having entirely new features, of which there was not so much as a hint in the original patent, and which, indeed, were wholly inconsistent with what was represented by the drawings of the original patent.

Hence it results, and we confidently submit, that upon the very face of the bill of complaint and of the two patents, original and reissue, whereof profert is made therein, the plaintiffs' case fails at the outset; because the reissue sued upon was unlawfully procured, and is invalid and void.

But, aside from this conclusion of law, there is no sufficient proof that the model deposited in the Patent Office by Thomas R. Bailey, Jr., with his original application, did in fact exhibit the invention in controversy.

That model passed through the fire at the Patent Office, September 24, 1877; and there remains of it only the part representing the shell of the hydrant proper, which was taken from the *débris* of the fire.

Frank A. Speare, Q 5–9, p. 187 (*Tr. Rec.*).
George T. Smallwood, C. Q. 5, p. 188 (*Tr. Rec.*).

No one assumes to testify as to its original condition, except Thomas R. Bailey, Jr., himself, who says that during the winter of '66 and '67, or spring of '67, he made two models, one of which he sent to Munn & Co., his patent solicitors in New York, and the other of which he has produced and put in evidence as "Exhibit Bailey's Original Model." He says there was no difference between the two;

but he does not undertake to compare them in detail, nor does it appear how he can remember very distinctly about his Patent Office model, which at the time of his testimony he had not seen for sixteen years and a half.

Thomas R. Bailey, Q. 9–16, p. 67 (*Tr. Rec.*).

Two other witnesses testify that they saw two models and that one of them was the Exhibit Bailey's Original Model; but neither of them undertakes to describe the one which became the Patent Office model, nor to say that it was like the exhibit in every material respect.

James E. Ferguson, Q. 10, 11, p. 116 (*Tr. Rec.*).
George Bailey, Q. 4–7, p. 150 (*Tr. Rec.*).

How little difference there would need to be between the two models in order that the invention in controversy should have been entirely wanting in the Patent Office model, may be seen from the fact that even in Exhibit Bailey's Original Model the feature of room for end-play of the case is provided for therein substantially, by the employment of leather washers, superfluous in number and of undue thickness, in the screw connections between the stock of the hydrant proper and the branch of the water-main.

Henry B. Renwick, Q. 8, p. 346 (*Tr. Rec.*).

It will be seen upon inspection of Exhibit Bailey's Original Model, and is, indeed, admitted by Thomas R. Bailey himself, that when the metal parts are screwed together without leather washers the space left for end-play of the case between its top and the bead on the body of the hydrant *is only three thirty-seconds of an inch.*

Thomas R. Bailey, C. Q. 388, 389, pp. 101, 102 (*Tr. Rec.*).

Hence it results that if in casting and finishing the several parts of this Exhibit Bailey's Original Model, it had happened either (1) that the bottom of the hydrant stock had been cut off three thirty-seconds of an inch shorter; or (2) that the ring-nut *m* down to its inner shoulder had been bored three thirty-seconds of an inch deeper; or (3) that the interior ring *n* had been made three thirty-seconds of an inch thinner; or (4) that the shoulder upon the outside of the ring-nut *m* had been cut three thirty-seconds of an inch higher; or (5) that the corresponding shoulder within the upward extension of the supply pipe had been bored three thirty-seconds of an inch lower;

or (6) that the socket at the bottom of the case had not been bored out so deep into three thirty-seconds of an inch; or (7) that the annular extension from the supply pipe, upon which the bottom of the case is socketed, had been cast or left three thirty-seconds of an inch longer; or (8) that the case itself had been cast or left three thirty-seconds of an inch longer; or (9) that the bead upon the body of the hydrant proper or the lower edge of such bead had been cast three thirty-seconds of an inch lower; then in either of these nine contingencies, the Exhibit Bailey's Original Model, when the metal parts were put together without leather washers, would not permit the slightest end-play of the case.

But any of these variations would be likely to occur in making another model out of castings from the same patterns; and if the Patent Office model, which Thomas R. Bailey testifies was made from iron castings which were duplicates of those from which Exhibit Bailey's Original Model was made (C. Q. 164, p. 81 *Tr. Rec.*), happened to vary in more than one of the nine modes just specified, then there was room enough for proper leather washers without expanding the structure so as to give the case any end-play.

Who can say that the Patent Office model, in the processes of casting and finishing, was not made to differ from Exhibit Bailey's Original Model, by small dimensions, in some of the various ways thus pointed out? Who is there to testify that in the Patent Office model there were no variations from Exhibit Bailey's Original Model, even to the extent of three thirty-seconds of an inch in the relative lengths of its parts? Could any one be believed if he undertook to assert such a thing by mere unaided memory after the lapse of more than sixteen years? Can the bare statement of Thomas R. Bailey himself, that there was not any difference between these models, have any weight in determining the question whether the metal parts of the Patent Office model did not differ in length by a few thirty-seconds of an inch from those of Exhibit Bailey's Original Model?

The complainants attempt to supplement this assertion of the patentee by putting in evidence an official letter from an examiner in the Patent Office to other applicants, Washburn Race and Samuel R. C. Mathews, for a patent upon a hydrant provided with an out-

side case having end-play, wherein their application was rejected on the ground that the Patent Office model previously deposited by Thomas R. Bailey, Jr., showed the whole invention.

Exhibit Mahon Copy, p. 196 (*Tr. Rec.*).
Exhibit Commissioner's Letter of Dec. 17, 1868, p. 306 (*Tr. Rec.*).

The examiner who wrote this letter is dead (Alexander Mahon, Q. 6, p. 192 *Tr. Rec.*), and no evidence can be had as to the adequacy or correctness of his examination of the model referred to. The letter, although signed by the Commissioner of Patents, expresses merely the opinion of the examiner for the time being, which may have been based upon a cursory and inadequate inspection of the model, and which was certainly negatived by the subsequent official action of the same examiner, and through him of the Commissioner of Patents, in afterwards allowing the application so rejected, and thus practically recalling and cancelling the rejection.

Exhibit Race & Matthews' Application of Oct. 29, 1868, pp. 61–64 (*Tr. Rec.*).

For although Race & Mathews presented to the examiner affidavits, showing their manufacture of hydrants, embodying this invention, to be prior to the application of Thomas R. Bailey, Jr., for his patent, No. 75,344; yet it does not appear that the final action of the Patent Office was based on such proof rather than on discovery by further inspection of Bailey's model, that it did not in fact exhibit the invention.

Rufus F. Osgood, Q. 5–13, pp. 209–211 (*Tr. Rec.*).
John A. Wiedersheim, Q. 3–6, pp. 252, 253 (*Tr. Rec.*); C. Q. 25, p. 255 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 51, pp. 273, 274 (*Tr. Rec.*).
Exhibit Goss Affidavit, p. 309 (*Tr. Rec.*).
Exhibit Ward Affidavit, p. 309, 310 (*Tr. Rec.*).
Exhibit Osgood-Wiedersheim Letter, p. 310 (*Tr. Rec.*).
Exhibit Wiedersheim Letter No. 2, p. 311 (*Tr. Rec.*).

Hence the result of all the evidence to be derived from the official action of the Patent Office is that, while at first glance the model deposited with the original application of Thomas R. Bailey, Jr., seemed to exhibit the invention of a hydrant with an outside case having end-play, the conclusion was finally reached that such was not the fact; and a patent for the invention was accordingly awarded to the subsequent applicants, Race & Mathews.

The complainants have also attempted to introduce a wholly incompetent piece of evidence in the shape of a letter, dated Jan. 4, 1876, and purporting to come from the law office of M. D. Leggett & Co., at Cleveland, Ohio, wherein the complainants are informed that information has been obtained, through a correspondent in Washington, that the Patent Office model belonging to the original patent of Thomas R. Bailey, shows room for end-play of the case.

Exhibit Leggett-Flower Letter, p. 58 (*Tr. Rec.*).

This letter is hearsay of the second degree, and its introduction was seasonably objected to on behalf of defendants, as inadmissible and incompetent.

James Flower, Q. 16, pp. 120, 121 (*Tr. Rec.*).

And the very fact that the complainants have tried to foist in such a paper instead of calling the Washington correspondent of Messrs. M. D. Leggett & Co. to testify as to any personal examination of the model at that time, throws further discredit upon the whole matter.

We insist therefore that such pretended evidence should be disregarded by the Court; but, aside from the incompetency of this letter, there is no indication in it that anything but the external appearance of the model was inspected; and that would have been wholly inconclusive, because, even if the model had been made precisely as shown in the drawings of the original patent, with absolutely no provision for end-play of the case, when the parts were in their intended places; any failure to screw home upon its seat, either the ring-nut *m*, or the interior ring *n*, or the hydrant stock itself, would give room for end-play of the case; *and there is not the slightest evidence of any kind that the apparent room for such end-play of the case was not wholly due to just this accidental misplacement of parts.*

Indeed, there is in the interpolated language of the reissue in suit evidence that the solicitor who drew the specification thought that the new invention claimed therein would have to be got out of the model by manipulation of the screw connections between the hydrant-

stock and the supply-pipe; for it is cunningly suggested therein that —

"This distance between the bead and casing may be adjusted to any desired distance, thus lengthening or shortening it by means of its screw attachment at its base."

Exhibit Bailey's Reissue, p. 54 (*Tr. Rec.*).

Thus is the whole pretension, that the new invention claimed in the reissue was exhibited in the Patent Office model, reduced to the suggestion that it might be introduced into that model, by failing to screw the parts up tightly at the joint between the hydrant-stock and supply-pipe, and that by as much as the members of the joint were kept apart, by so much would the case be given end-play; for if, to repeat the language of the reissue, "this distance between the bead and casing may be adjusted *to any desired distance*, thus lengthening or shortening it *by means of its screw-attachment at its base*," it follows that it could, by the same means, be either entirely eliminated or wholly created; and such a statement is virtually a confession that the solicitors who procured this reissue knew that the pretended discovery in Bailey's Patent Office model of end-play in the hydrant case was due to an adroit manipulation of the screw-attachment at the base.

Such an attempt to introduce into a structure, by abnormal displacement of parts, an invention which it did not originally contain and was not intended to have, cannot be countenanced in cases of this kind. The law of the original structure must control; and no after-thought can convert the thing into what it was not normally designed to be.

Clough v. *Barker*, 106 U.S. 166, 175, 176.
Am. Bell Telephone Co. v. *Dolbear*, 17 Fed. Rep. 604, 605.

Moreover, the suggestion interpolated into the specification of the reissue, that the screw-attachment at the base of the hydrant-stock furnishes means for lengthening or shortening the distance between the bead and the casing to any desired amount, is not true when applied to a working structure. It is necessary that such screw-joints shall be water-tight under considerable hydraulic pressure; and the introduction of leather washers in multiple fold or of excessive thickness would not cure the tendency to leakage. Hence all this pre-

tence of mistake in the original patent taken by Thomas R. Bailey, Jr., is due to the discovery that by manipulating the joints of the Patent Office model in such manner as would not in fact be practical for a full-size working structure, it might be made to represent an invention which the complainants desired to secure.

Furthermore, the evidence furnished by the drawings of the original patent must not be overlooked nor its weight underestimated; for it is of the highest value and creates the strongest presumption, both of fact and of law, that the construction of the Patent Office model was intended to be in all essential and material particulars exactly what those drawings represent, — no more and no less.

That model was before the draughtsman employed by Munn & Co. to make the original drawings; and the burden of proof is on the complainants to show that he did not correctly delineate the construction and relative position of the several parts which he necessarily at that time had to examine.

On the other hand, the draughtsman who prepared the drawings for the reissue is not proved to have made them by comparison with the model; and the presumption is that he simply altered the original drawings to suit the theory that such correction was needed. Nor is there any evidence whatsoever that, in the whole course of the proceedings by which the reissue sued upon was procured, any examination of the Patent Office model was made to ascertain whether the screw-connections between the hydrant-stock and the supply-pipe were properly put together or not.

The draughtsman who made the drawings for the original patent must necessarily have taken the model apart; and if, after he was done with it, the model had been carelessly put together, so that the ring-nut *m* was not screwed down to its seat, or so that the interior ring *n* was not screwed down as far as it would go, or so that the hydrant stock itself was not screwed into the ring-nut *m* as far as it might have been, all of which might easily have happened for various reasons; then the full extent of such mal-adjustment would have appeared as space for end-play between the top of the case and the bead on the hydrant; and would have been sufficient to mislead any one who confined his examination to the outside of the structure.

It is incumbent upon the complainants to prove positively that such was not the fact. They must overcome the presumption that the Patent Office model was ~~not~~ correctly represented by the drawings of the original patent. They allege error in respect thereto, arising from inadvertence, accident or mistake; and upon such allegation is based their whole claim under the reissue in suit.

This they must prove affirmatively and conclusively before any other issue can be raised; and for such evidence they have produced only a single witness, and he, too, the patentee himself, who exhibits, throughout his testimony, intense partisan bias in favor of the complainants.

Even his testimony does not cover the points to be proved. He simply states, in general terms, that there is no difference between Exhibit Bailey's Original Model and his Patent Office model. (Q. 16, p. 67 *Tr. Rec.*) He does not say that he himself did all the lathe work and finishing of the two models, nor that he measured all parts of them when finished; nor does he state any conditions or circumstances under which, after the lapse of sixteen years and upwards, he can be credited with knowing that they did not vary from each other the very small fractions of an inch which, as we have seen, would be sufficient to entirely eliminate any such end-play of the case, as is now shown by the only one of the two models which is extant.

Besides, Thomas R. Bailey, Jr., does not himself testify that the two models were made at exactly the same time, nor from comparative measurements; and, as he admits that the plate upon Exhibit Bailey's Original Model, which reads, "T. R. Bailey, Jr., Lockport, N.Y., *Pat. Apl'd For*," was put on there at the time when he made this model; such an inscription is good intrinsic evidence that the model was not constructed until after Sept. 16, 1867, the date of his application for patent No. 75,344, and certainly a month after he had sent the model for the Patent Office to Munn & Co., at New York; notwithstanding that, he testifies, without the aid of any original memoranda, that both models were made during the preceding winter or spring of 1867.

Thomas R. Bailey, Q. 9–18, p. 67 (*Tr. Rec.*); C. Q. 148, pp. 79, 80 (*Tr. Rec.*); C. Q. 163–173, p. 81 (*Tr. Rec.*); C. Q. 207, p. 84 (*Tr. Rec.*).

Exhibit File Wrapper and Contents Bailey's Original Patent, pp. 593, 597 (*Tr. Rec.*).

But, were this otherwise, the testimony of a single witness cannot, in such a case, warrant a court of equity in finding for the complainant against the denial of defendant's answer.

Tobey v. *Leonard*, 2 Clifford, 40, 50, 51.
Andrews v. *Hyde*, 3 Clifford, 516, 522.
Carpenter v. *Insurance Co.*, 4 Howard, 185, 218.
Grant v. *Grant*, 34 Beavan, 623, 627.

Finally, if the complainants had succeeded in showing that Bailey's Patent Office model differed from the drawings of his original patent in the manner alleged, it would still be necessary for them to further show that such difference was not purely accidental, and that the structure described and represented in the original patent did not embrace all the invention intended thereby to be patented.

This the complainants have by no means proved, and we shall have occasion further on to call attention to the conduct of the patentee as furnishing conclusive evidence that at the time of his application for the original patent, he neither pretended to have invented nor intended to describe or claim as his invention what the reissue, procured more than eight years afterwards, was designed to cover.

The defence here under consideration may be summed up thus: —

1. The reissue No. 6,990, sued upon, is invalid and void, because it is for a substantially different invention from what the original patent No. 75,344 was granted to secure.

2. It is immaterial to this issue whether the Patent Office model did or did not exhibit the invention described, shown and claimed in the reissue; because the total absence of such invention from the original patent utterly precluded conformity with the requisition of the statute that the reissue should be "for the same invention."

3. Even if the statute permitted a valid reissue to be taken for an invention exhibited in the Patent Office model, but not described or shown in the original patent; the plaintiffs in this case have failed to prove that the Patent Office model which accompanied the application for original patent No. 75,344 substantially differed in construction from the description and drawings of that patent, or exhibited in any manner the invention interpolated into the reissue No. 6,999.

II. Reissue No. 6,990, taken too late, and with new and enlarged claims affecting adverse interests established long before.

There never was a more flagrant violation of the law laid down by the Supreme Court in the case of *Miller* v. *Brass Co.* (104 U. S. 350) than is presented in the case at bar.

Early in the year 1867, and more than six months before Thomas R. Bailey, Jr., filed his application for the original patent, No. 75,344, the Niagara Manufacturing Company, of Lockport, New York, were engaged in manufacturing and selling hydrants provided with outside cases having end-play, and embracing the very invention which constitutes the subject-matter of the first claim of the reissue here in suit.

This has been abundantly proved by reference to entries in the sales-book of that corporation, by the testimony of those who purchased such hydrants during the first half of that year, and by one of the very hydrants dug up and put in evidence as "Exhibit Race & Mathews Hydrant."

Chas. H. Squires, Q. 3, p. 197 (*Tr. Rec.*).
Oliver C. Wright, Q. 4–11, pp. 197, 198 (*Tr. Rec.*).
William P. Field, Q. 14–19, p. 200 (*Tr. Rec.*).
Richard H. Button, Q. 20–23, p. 205 (*Tr. Rec.*); Q. 26–31, pp. 205, 206 (*Tr. Rec.*)
Isaac S. Hobbie, Q. 3–20, pp. 214–216 (*Tr. Rec.*).
Joseph J. Illingworth, Q. 3–13, pp. 231, 232 (*Tr. Rec.*).
George H. Wiley, Q. 3, C. Q. 4, pp. 234, 235 (*Tr. Rec.*).
Marmaduke Clark, Q. 5, p. 236 (*Tr. Rec.*).
Robert B. Coar, Q. 5–19, pp. 237, 238 (*Tr. Rec.*).
James Carroll, Q. 4–17, pp. 244, 245 (*Tr. Rec.*).
John F. Ward, Q. 3–12, pp. 259, 260 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 35–48, pp. 269–273 (*Tr. Rec.*); Q. 52, p. 274 (*Tr. Rec.*); Q. 58, pp. 275, 276 (*Tr. Rec.*); Q. 61, p. 276 (*Tr. Rec.*).
Exhibit Railroad Receipt, No. 1, p. 303 (*Tr. Rec.*)
Exhibit Ward Letter, p. 303 (*Tr. Rec.*).
Exhibit Mathews-Blauvelt Letter, p. 304 (*Tr. Rec.*).
Exhibit Utica Water Works Bill, p. 305 (*Tr. Rec.*).
Exhibit Utica Steam Cotton Mill Bill, p. 305 (*Tr. Rec.*).
Exhibit Marmaduke Clark Bill, p. 306 (*Tr. Rec.*).
Exhibit Ward Affidavit, pp. 309, 310 (*Tr. Rec.*).
Exhibit Isaac S. Hobbie's Former Deposition, pp. 313, 314 (*Tr. Rec.*).
Exhibit James Reid's Former Deposition, p. 315 (*Tr. Rec.*).

It appears also by reference to entries taken from the sales-book of the Niagara Manufacturing Company, that the number of these

hydrants sold during the year 1867 amounted in the aggregate to five hundred and sixteen, and of these, three hundred and fifty-seven had been sold before the date of Thomas R. Bailey, Jr.'s, application for his original patent No. 75,344, which was filed Sept. 16, 1867.

Samuel R. C. Mathews, Q. 46, 47, pp. 272, 273 (*Tr. Rec.*).
Exhibit File Wrapper and Contents Bailey's Original Patent, pp. 593, 597 (*Tr. Rec.*).

The manufacture of the same kind of hydrants, that is to say, like Exhibit Race & Mathews Hydrant, which has an outside case capable of end-play, and which, in fact, is substantially the same in construction as the hydrants for the use of which the defendants in this suit are charged with infringement, was continued by the Niagara Manufacturing Company until it failed in the summer of 1868, and thereafter for about a year in the same shop by one of its creditors, Helen M. Lloyd, and then again for about a year longer by Samuel R. C. Mathews, in the same city of Lockport, making in all upwards of four years of such manufacture there up to the spring of 1870.

Samuel R. C. Mathews, Q. 4, p. 262 (*Tr. Rec.*).; Q. 65–67, p. 277 (*Tr. Rec.*).

Meantime the patent No. 96,959, dated Nov. 16, 1869, had been granted to the said Samuel R. C. Mathews, as joint inventor with, and assignee of Washburn Race, for an improvement in hydrants which embraced the very invention of an outside case having end-play now in controversy in this suit. (*Vide ut infra* pp. 93, 94.)

Exhibit Race & Mathews 1869 Patent, pp. 63, 64 (*Tr. Rec.*); 324–327 (*Tr. Rec.*).

And from the spring of 1870 down to the present time, the manufacture of such hydrants has been carried on by the same Samuel R. C. Mathews in copartnership with R. D. Wood & Co., at Philadelphia, Penn.

Samuel R. C. Mathews, Q. 4, p. 262 (*Tr. Rec.*).

The extent of this manufacture, up to the date of the reissue here in suit, was about eight or nine thousand such hydrants; and since then, up to the beginning of the present suit, about twelve or fourteen thousand more.

Samuel R. C. Mathews, Q. 75, 76, p. 279 (*Tr. Rec.*).

Moreover, the Boston Machine Company, a corporation carrying on business in Boston, Mass., began, in 1868, to manufacture, under patent No. 80,143, dated July 21, 1868, granted to it as assignee of Zebulon E. Coffin, hydrants such as was therein described, embracing the very invention here in controversy, of outside case having end-play, and continued so to do down to about 1883, when it went out of business. The number of such hydrants so manufactured by the Boston Machine Company from 1868 to the date of the reissue in suit was three thousand, and afterwards about one thousand more.

Charles Carr, Q. 5–15, pp. 339–341 (*Tr. Rec.*).
Exhibit Coffin Original Patent, pp. 327–330 (*Tr. Rec.*).

All the hydrants of this construction, so manufactured by the Niagara Manufacturing Company, Helen M. Lloyd, Samuel R. C. Mathews, R. D. Wood & Co., and the Boston Machine Company, were sold and put into use in various cities and towns all over the United States.

Samuel R. C. Mathews, Q. 77, p. 279 (*Tr. Rec.*).
Charles Carr, Q. 16, p. 341 (*Tr. Rec.*).

This makes an aggregate of eleven or twelve thousand hydrants of the very construction now complained of as infringements in the present suit, made and put into use during the period of eight or nine years preceding the date of the reissue now sued upon, and by persons whose interests were wholly adverse to any claim of invention set up by Thomas R. Bailey, Jr.

And these hydrants did not in any way infringe upon the original patent No. 75,344 to Thomas R. Bailey, Jr.

Henry B. Renwick, Q. 10, pp. 346–349 (*Tr. Rec.*); Q. 12, pp. 349, 350 (*Tr. Rec.*); Q. 15, p. 350 (*Tr. Rec.*); Q. 19, pp. 352, 353 (*Tr. Rec.*); Q. 29, p. 356 (*Tr. Rec.*).

It is estimated that there are as many as *thirty thousand* such hydrants now in use in the United States which have been manufactured adversely to any interests of Thomas R. Bailey, Jr., or the complainants as his assignees; and consequently it appears that about forty per cent of this aggregate, against which the complainants now set up their claim of infringement upon the reissue in suit, were made and put into use before the date of such reissue!

Samuel R. C. Mathews, Q. 75, 76, p. 279 (*Tr. Rec.*).

Furthermore, it is in evidence that the hydrants, for the use of which the defendants in this suit are charged with infringement upon the reissue No. 6,990, were purchased from the same R. D. Wood & Co., of Philadelphia; and that the number of such hydrants so procured down to July 1, 1883, had amounted to 676. Of these 81 were purchased in 1872, 16 in 1873, 72 in 1874, and 100 in 1875, making 269 during the four years preceding the date of plaintiffs' reissue; *or, in other words, nearly forty per cent of the whole number of hydrants now complained of as infringements were put into use by these defendants before the reissue in suit was procured, without in any way infringing upon the original patent.*

James E. Tryon, Q. 7, p. 138 (*Tr. Rec.*).

Now, when we turn to consider the conduct of Thomas R. Bailey, Jr., from the time of his preparation to make application for original patent No. 75,344 down to the procurement of the reissue No. 6,990, after eight years of delay, there is not the slightest evidence of any kind in support of the allegation of inadvertence, accident or mistake contained in the bill of complaint, to justify the procurement of such reissue; but, on the other hand, there is abundant evidence of indifference, negligence and laches on the part of the said Thomas R. Bailey, Jr., if, indeed, he ever really believed that he invented the things interpolated into his reissue, which is very doubtful, as will be shown further on.

His own testimony in respect to the preparation of his application for the original patent No. 75,344 is as follows.

"*C. Q.* 135. You say in your answer to interrogatory seven that you first sent your specification to Munn & Co., Sept. 7, 1867, and in answer to interrogatory eight you say you fixed the date from a copy of a letter which you took from a letter book of T. R. Bailey's Sons. Who had prepared that specification?

"*A.* Munn & Co. of New York.

"*C. Q.* 136. And they had sent it to you for execution, had they?

"*A.* Yes, sir.

"*C. Q.* 137. Then you had had previous correspondence with them, had you?

"*A.* Yes, sir."

. . . . . .

"*C. Q.* 149. *What is your recollection as to the manner in which Munn & Co. were instructed to draw up this specification which you executed for your patent, No.* 75,344?

"*A.* *My recollection is that I wrote them about it, giving them my idea of it, some time previous, — I think a month, — to the forwarding to them of the specifications.*

"*C. Q.* 150. You say in answer to interrogatory nine, that you think the model was sent to Munn & Co. before Sept. 7, 1867. How long before, and when, with reference to the date of your writing them about it, giving them your idea of it?

"*A.* I think probably it was a month before the letter of Sept. 7, 1867; probably about the time of the other letter.

"*C. Q.* 151. Do you remember writing Munn & Co. more than one letter of instruction about the preparation of your specification, which you afterwards execu'ed and sent, Sept. 7, 1867?

"*A.* I do not.

"*C. Q.* 152. *Did you read the specification which you executed and sent to Munn & Co., Sept.* 7, 1867, *before you signed and swore to it?*

"*A.* *I did.*"

Thomas R. Bailey, dep., pp. 78, 80 (*Tr. Rec.*).

Thus by his own explicit testimony it appears that when he sent his Patent Office model to Munn & Co., he wrote them about it, giving his idea of it; and when, in the course of a month thereafter, they sent to him the specification which they had prepared, he read the same before signing and making oath to it, and thereupon forwarded it to them to be filed in the Patent Office. He does not pretend that Munn & Co. did not follow his instructions, or did not fully embody his idea of the invention which he then sought to obtain a patent for. There was no inadvertence, accident, or mistake so far.

He further testifies as to his acts upon receiving the original patent as follows: —

"*C. Q.* 154. How long, according to the best of your recollection, was it after the issue of the patent, March 10, 1868, before you received it? State as nearly as you can.

"*A.* I should say two or three days.

"*C. Q.* 155. *When you got it did you read it?*

"*A.* *I did.*

"*C. Q.* 156. Did you also, as soon as you received it, examine the drawings contained in it?

"*A.* Not particularly.

"*C. Q.* 157. What do mean by that?

"*A.* I mean I didn't consider the drawings were an important part.

"*C. Q.* 158. You didn't consider the drawings were an important part of what?

"*A.* The letters patent.

"*C. Q.* 159. You knew, did you not, when you first saw the drawings of that patent No. 75,344, that from them a hydrant with a loose case having end play could not be made?

"*A.* No, sir; I didn't know any such thing.

"*C. Q.* 160. Why did you not know any such thing?

"*A.* Because, as I said before, I didn't consider the drawings an important part of the patent, and didn't examine to see whether they were correct with the model.

"*C. Q.* 161. Have you not testified in this examination, in substance, that a hydrant with a loose case having end play could not be made from the drawings of this patent, No. 75,344?

"*A.* I have.

"*C. Q.* 162. And didn't you know that fact when you first examined those drawings after you got that patent?

"*A.* I did not."

Thomas R. Bailey, dep., pp. 80, 81 (*Tr. Rec.*).

Passing for the moment this disingenuous statement about the drawings, we have his distinct admission that he *read* the patent when he got it some two or three days after its issue.

He had read that same specification six months before, when he signed and swore to it, and he gave it a second reading as soon as he received the patent.

At the outset, therefore, he could not have failed to know that the specification prepared for and inserted in that original patent did not contain a word of description, suggestion or inference that the invention set forth therein embraced a hydrant with a loose case having end-play; and, knowing all this, he delayed eight years before attempting to obtain a reissue covering this feature omitted from the original patent.

It is immaterial what he thought about the drawings of the original patent, or whether he examined them or not. It is absurd to suppose that a mechanic, such as he was, would not examine the drawings of his patent as critically as the verbal description; but if he did not, the fact that he did read the specification, and was informed thereby that no mention was made of any capacity of end-play in the case, rendered it superfluous for him to note the same absence of any such feature in the drawings. He was amply notified by what he read that the original patent did not contain the subject-matter which has since been interpolated into the reissue; and if he could have lawfully obtained such a reissue by immediate surrender of his original patent as soon as he read it, — which we deny for reasons already given, — his delay of eight years certainly brought him into the legal predicament so forcibly described in the following

opinion of this Court, delivered by Mr. JUSTICE BRADLEY in the leading case already named upon this point: —

"But it must be remembered that the claim of a specific device or combination and an omission to claim other devices or combinations apparent on the face of the patent, are in law a dedication to the public of that which is not claimed. It is a declaration that that which is not claimed is either not the patentee's invention, or, if his, he dedicates it to the public. This legal effect of the patent cannot be revoked unless the patentee surrenders it and proves that the specification was framed by real inadvertence, accident or mistake, without any fraudulent or deceptive intention on his part; and this should be done with all due diligence and speed. Any unnecessary laches or delay in a matter thus apparent on the record affects the right to alter or reissue the patent for such cause. If two years' public enjoyment of an invention with the consent and allowance of the inventor is evidence of abandonment, and a bar to an application for a patent, a public disclaimer in the patent itself should be construed equally favorable to the public. Nothing but a clear mistake or inadvertence and a speedy application for its correction, is admissible when it is sought merely to enlarge the claim."

. . . . . .

"Reissues for the enlargement of claims should be the exception and not the rule. And when, if a claim is too narrow, — that is, if it does not contain all that the patentee is entitled to, — the defect is apparent on the face of the patent, and can be discovered as soon as that document is taken out of its envelope and opened, there can be no valid excuse for delay in asking to have it corrected. Every independent inventor, every mechanic, every citizen, is affected by such delay and by the issue of a new patent with a broader and more comprehensive claim. The granting of a reissue for such a purpose, after an unreasonable delay, is clearly an abuse of the power to grant reissues, and may justly be declared illegal and void. It will not do for the patentee to wait until other inventors have produced new forms of improvement, and then, with the new light thus acquired, under pretence of inadvertence and mistake, apply for such an enlargement of his claim as to make it embrace these new forms. Such a process of expansion carried on indefinitely, without regard to lapse of time, would operate most unjustly against the public, and is totally unauthorized by the law. In such a case, even he who has rights and sleeps upon them, justly loses them."

Miller v. *Brass Co.*, 104 U. S. 350, 352, 355.

If, then, this is the legal predicament of a patentee whose original patent described and showed, but did not claim the invention for which he afterwards obtained a reissue; how much more desperate must be the legal predicament of the patentee in the present case, whose original patent neither described nor showed nor claimed the invention for which eight years later he procured the reissue in suit!

If in the language of the opinion of this Court just quoted "*the claim of a specific device or combination, and an omission to claim other devices or combinations apparent on the face of the patent, are, in law, a dedication to the public of that which is not claimed,*" . . . "*a declaration that that which is not claimed is either not the patentee's invention, or, if his, he dedicates it to the public*"; the conclusion must be *à fortiori* that an omission not merely to claim but even to describe or show a device or combination is a declaration that the thing so omitted from the patent is either not the patentee's or has been dedicated by him to the public.

And if an omission to claim a device or combination, which is actually described, is a defect apparent upon the face of the patent; the utter absence of description and delineation, as well as claim, must certainly be a defect, which if contrary to the patentee's intent, must strike him with the utmost force upon the first inspection of the patent.

Hence, if Thomas R. Bailey, Jr., really believed himself to be the inventor of a hydrant provided with an outside, loose case having end-play, he could have escaped the charge of negligence in applying for a reissue to secure the same, only by proceeding to do so immediately after he received and read his original patent; and if such reissue, seasonably applied for, could have had any validity (which is denied for reasons already stated), the delay of eight years before procuring the reissue in suit to cover that invention, — during which period thousands of hydrants embodying such invention, but not infringing upon the original patent then in force, had been manufactured and put into use, — is laches of the grossest kind and works a fraud upon the public.

But the flagrancy of the injustice attempted in this case does not end with mere delay, while opposing interests were arising and increasing. It is in evidence that the patentee, although knowing that others were practising the invention now in controversy, stood by in silence and without asserting any adverse claim; and it is ad-

mitted, both by him and the complainants, that the reissue in suit was not applied for by the patentee of his own motion, nor with any personal representations from him setting forth reasons for the formal allegation of inadvertence, accident or mistake; but that the whole matter was a mere business speculation in which the complainants bore the expenses of employing solicitors to prepare and prosecute the application, and the patentee executed such papers as were presented to him for that purpose.

The evidence upon these points we will now proceed to consider. At the time of the alleged origination, by Thomas R. Bailey, Jr., of the invention in controversy, his shop, in Lockport, N. Y., was only about two or three hundred feet from the shop of the Niagara Manufacturing Company, whose manufacture was carried on there openly, and in full view of any one who chose to enter. Thomas R. Bailey, Jr., was a frequent visitor at that company's shop, and had abundant opportunity to observe and ascertain what was going on there.

Thomas R. Bailey, C. Q. 69, 70, p. 73 (*Tr. Rec.*).
Richard H. Button, Q. 40, 41, pp. 206, 207 (*Tr. Rec.*).
Jared M. Gleason, Q. 40–44, pp. 228, 229 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 56, 57, p. 275 (*Tr. Rec.*).

It is hardly probable, therefore, that he should have remained ignorant of the extensive manufacture by that company, in 1867, of hydrants constructed like Exhibit Race & Mathews Hydrant, which is itself one of them, and which fully embodies the invention of an outside case having end-play. Indeed, he admits that at some time he knew the manufacture of such hydrants was going on at that shop; but he thinks that it was after the Niagara Manufacturing Company had failed, and while Helen M. Lloyd, one of its creditors, was carrying on the business there. This was between August, 1868, and the summer of 1869.

Thomas R. Bailey, C. Q. 115–119, p. 77 (*Tr. Rec.*).
John A. Merritt, Q. 7, pp. 167, 168 (*Tr Rec.*).
Samuel R. C. Mathews, Q. 4, p. 262 (*Tr. Rec.*); Q. 65–67, p. 277 (*Tr. Rec.*).

Furthermore, besides a single hydrant of this kind set on one of the principal streets of the city of Lockport, N. Y., in July, 1867, to replace a broken hydrant, there were others of the same kind furnished by the Niagara Manufacturing Company, to be set in connec-

tion with the water-pipe extension on Buffalo and Transit streets in the same city during the fall of 1867.

Charles H. Squires, Q. 3, p. 197 (*Tr. Rec.*).
Oliver C. Wright, Q. 4–11, pp. 197, 198 (*Tr. Rec.*).
William P. Field, Q. 14–19, p. 200 (*Tr. Rec.*).
Richard H. Button, Q. 28–30, pp. 205, 206 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 47, pp. 272, 273 (*Tr. Rec.*); Q. 58, pp. 275, 276 (*Tr. Rec.*); Q. 61, p. 276 (*Tr. Rec.*).

And whether Thomas R. Bailey, Jr., had knowledge of the earlier one or not, there is good reason for believing that he saw the later ones; for he himself got permission from the city authorities to have a single hydrant, which was the first one he ever made, put down on Transit Street, in connection with this very water-pipe extension, late in the fall of 1867; and the contractor who did the job testifies that Bailey was present there many times while the work was going on.

Thomas R. Bailey, Q. 27, p. 68 (*Tr. Rec.*).
Charles H. Squires, Q. 3, 4, pp. 154, 155 (*Tr. Rec.*).
James Clapham, Q. 4–7, p. 156 (*Tr. Rec.*); C. Q. 85–97, pp. 163, 164 (*Tr. Rec.*).

Afterwards, in the summer of 1869, Thomas R. Bailey, Jr., tried to have six of his hydrants put down in connection with the East Avenue and Washburn Street water-pipe extension in the same city; but owing to a threat of prosecution for infringement of a patent granted January 26, 1858, to Washburn Race and Samuel R. C. Mathews, who had been principal managers of the Niagara Manufacturing Company, Bailey's hydrants were rejected, and hydrants like Exhibit Race & Mathews Hydrant were put down instead.

Thomas R. Bailey, C. Q. 105–111, p. 76 (*Tr. Rec.*).
Charles H. Squires, Q. 6, p. 155 (*Tr. Rec.*).
James Fleming, Q. 3–9, pp. 164, 165 (*Tr. Rec.*); C. Q. 15–21, pp. 165, 166 (*Tr. Rec.*).
Exhibit Race & Mathews, Fleming Letter, p. 166 (*Tr. Rec.*).
John McCue, Q. 29–32, p. 172 (*Tr. Rec.*).
Richard H. Button, Q. 26–34, pp. 205, 206 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 63, 64, pp. 276, 277 (*Tr. Rec.*).

This rejection of his hydrants in favor of those of a rival manufacturer surely ought to have interested Thomas R. Bailey, Jr., enough to make him acquainted with the construction of the hydrants which supplanted his, and which were all like the Exhibit Race & Mathews Hydrant, such as these defendants are now complained of

for using; and such an experience certainly ought to have put him on the inquiry; but, although he does not positively deny that he knew what those hydrants were which went down in place of his, he will not admit that he did know.

Thomas R. Bailey, C. Q. 112, 113, p. 76 (*Tr. Rec.*).

However, he does admit that about the year 1869 or 1870 he saw such a hydrant as the Exhibit Race & Mathews Hydrant being set on Main Street, in the city of Lockport, and he testifies that it was the first of that pattern which he remembers to have seen.

Thomas R. Bailey, 2d dep., Q. 39, p. 382 (*Tr. Rec.*).

Whether, therefore, he did see any others of like construction at the shop of the Niagara Manufacturing Company, where they were manufactured in large numbers in 1867; or whether he saw those of the same manufacture, which, towards the close of the year 1867, were set in connection with the Buffalo and Transit streets water-pipe extension, which he visited many times while the work was going on; or whether he saw the others of like kind, which went down in 1869 upon the East Avenue and Washburn Street water-pipe extension in place of his rejected hydrants; his own admissions that he knew such hydrants were manufactured by Helen M. Lloyd, at the old shop of the Niagara Manufacturing Company, and that he saw one at least set on Main Street, in the city of Lockport, within two years from the date of his original patent of March 10, 1868, conclusively show that if he really believed himself to be the inventor of a hydrant with an outside case having end-play, and seriously intended to secure such invention, it was incumbent upon him to take speedy action in the matter; and that if his original patent, which he knew at the outset did not describe or claim any such invention, could lawfully be corrected by reissue, it should have been done at once.

But he continued his inactivity and indifference in this matter until the fall of 1875, when, upon a visit to Saginaw, Mich., he learned that R. D. Wood & Co., of Philadelphia, who were manufacturing hydrants of the kind now in controversy, under the Race and Mathews patents, had forbidden the city of Saginaw from using hydrants with sliding cases made by the complainants.

Thomas R. Bailey, Q. 459–465, pp. 110, 111 (*Tr. Rec.*).

Thereupon he wrote a letter to the complainants, dated Nov. 3, 1875, wherein he stated that he had a hydrant with a loose case patented in 1868, and offered to sell to them or go in with them "to make Mr. Mathews stop his noise."

Thomas R. Bailey, Q. 467, 468, p. 111 (*Tr. Rec.*).
Exhibit Bailey-Flower Letter No. 1, pp. 56, 57 (*Tr. Rec.*).

This opened a correspondence, only part of which has been put in evidence by the complainants; but it appears that Bailey sent his patent No. 75,344 to James Flower, who then obtained an opinion on it from Messrs. M. D. Leggett & Co., of Cleveland, O.; and that afterwards arrangements were made for procuring a reissue at the expense of the complainants, with the view of their ultimate purchase of it for purposes of their own.

Thomas R. Bailey, C. Q. 319–371, pp. 96-100 (*Tr. Rec.*); Q. 466–470, p. 111 (*Tr. Rec.*).
James Flower, Q. 3–5, p. 119 (*Tr. Rec.*); Q. 14–17, pp. 120, 121 (*Tr. Rec.*); C. Q. 59, 60, pp. 125, 126 (*Tr. Rec.*).
William A. Pendry, Q. 13–18, pp. 143, 144 (*Tr. Rec.*).
Exhibit Bailey-Flower Contract, p. 57 (*Tr. Rec.*).
Exhibit Leggett-Flower Letter, p. 58 (*Tr. Rec.*).
Exhibit Pendry Letter No. 1, p. 65 (*Tr. Rec.*).
Exhibit Pendry Letter No. 2, pp. 65, 66 (*Tr. Rec.*).

The evidence is conclusive that Thomas R. Bailey, Jr., was entirely passive in this matter of procuring the reissue in suit, except so far as it became a means for getting some money out of the complainants; and that there was nothing in his conduct to justify the suggestion of inadvertence, accident or mistake as the ground for surrender of his original patent.

The bill of complaint alleges:—

"that on or about the first day of February, A. D. 1876, *your orators*, then being about to acquire an interest in said invention under said letters patent [*i.e.* No. 75,344], *only by the aid of skilful solicitors* learned in the law and after careful examination of the letters patent and the papers and model on file and deposit in said Patent Office with the said application of the said Thomas R. Bailey, Jr., therefor, *first learned* that said letters patent were inoperative and invalid by reason of a defective and insufficient specification," . . . "and that *your orators*, on thus learning of the said facts, at once *informed the said Thomas R. Bailey, Jr.*, thereof, *who then and thereby first discovered* the said defect in and insufficiency of said specification."

Bill of Complaint, p. 10 (*Tr. Rec.*).

And Thomas R. Bailey, Jr., testifies that his attention was first called to the difference between the drawing of his original patent and his Patent Office model, by James Flower in the spring of 1876.

Thomas R. Bailey, Q. 19, 20, pp. 67, 68 (*Tr. Rec.*).

This shows that if the model did in fact differ from the drawing of the original patent, the inadvertence, accident or mistake was in the model, which the patentee had not seen for upwards of eight years, and *not* in the drawing which had been at hand and acquiesced in by him ever since he received the original patent. *Now the presumption both of law and of fact is that any discrepancy between the Patent Office model and the drawing of the original patent was an accidental variation in the model and not an error in the drawing;* and under such circumstances as these, the presumption is so violent as to become in effect an inevitable conclusion.

The question at issue is *not* whether the model differed from the drawing, but is whether the patentee *intended* to patent what was shown in the original drawing; and the intent of Thomas R. Bailey, Jr., to patent just what he described, showed and claimed in his original patent, cannot be gainsaid, after his possession of that patent for eight years without knowing that it did not show exactly what he intended to patent thereby; nor can such intent be disproved by getting lawyers to discover something different in the Patent Office model, and hiring him to make oath that it was omitted from his original patent of eight years' standing, by inadvertence, accident or mistake.

The following testimony of Thomas R. Bailey, Jr., is important in this connection: —

"*C. Q.* 340. What did Mr. Flower tell you about your original patent and Patent Office model when you met him at Cleveland, or at any other place for the first time?

"*A.* I couldn't say what he said except we would have to have a reissue, because of some defect in the papers as prepared by Munn & Co.

"*C. Q.* 341. Had he bargained for the purchase of your patent at that time?

"*A.* I think not, but I am not sure. If he had it was contingent that the reissue would be granted."

. . . . . .

"*C. Q.* 351. Did he tell you how he had ascertained that the model differed from the drawing of your patent, No. 75,344?

"*A.* I don't remember that he did.

"*C. Q.* 352. Didn't he tell you that there was a difference between them?

"*A.* At the time I met him in Cleveland, I think he did.

"*C. Q.* 353. Just what did he tell you about this on that occasion?

"*A.* I can't say.

"*C. Q.* 354. Have you told all that you remember his telling you on that occasion?

"*A.* I have.

"*C. Q.* 355. *Did you move in the matter of procuring the reissue in suit of your own accord or because Mr. James Flower induced you to do so?*

"*A. Because Mr. Flower wanted me to do so.*"

. . . . . .

"*C. Q.* 361. Who employed Messrs. Leggett & Leggett to prepare your application for the reissue in suit?

"*A.* I don't know.

"*C. Q.* 362. You know you did not, don't you?

"*A.* Yes, sir.

"*C. Q.* 363. Who paid your expenses in going to Cleveland on this business?

"*A.* I think Mr. James Flower did. I am not positive about it.

"*C. Q.* 364. *Did you give Messrs. Leggett & Leggett, or their representative, any instructions as to the preparation of your application for the reissue in suit?*

"*A. I think not.*

"*C. Q.* 365. *The whole business of preparing that application was done by others than yourself, was it not?*

"*A. It was.*

"*C. Q.* 366. *And all you did about it was to sign and swear to it after it had been prepared and sent to you for that purpose, is it not so?*

"*A. I think so except to return the papers to Mr. Leggett.*

"*C. Q.* 367. What was the actual consideration paid you by Mr. James Flower and his brothers for the assignment of the reissue in suit?

"*A.* $1,000."

Thomas R. Bailey, dep., pp. 98, 99, 100 (*Tr. Rec.*).

See also

James Flower, Q. 14-17, pp. 120, 121 (*Tr. Rec.*); C. Q. 59, 60, pp. 125, 126 (*Tr. Rec.*).

And the motive of the complainants in causing all this to be done is found in the fact that they had engaged regularly in the business of manufacturing hydrants in 1873 or 1874; had found themselves seriously interfered with by R. D. Wood & Co., who manufactured under the Race & Mathews patents; and had been threatened by Mr. Samuel R. C. Mathews with suit for infringement; and therefore, they sought for any available chance of setting up a defence or counter claim.

James Flower, Q. 23, p. 121 (*Tr. Rec.*); Q. 35, 36, p. 123 (*Tr. Rec.*); C. Q. 67-70, pp. 126, 127 (*Tr. Rec.*); Q. 84-87, pp. 128, 129 (*Tr. Rec.*).

Mr. James Flower, one of the complainants, sums up the matter as follows: —

"*C. Q.* 122. For what purpose did you procure the reissue No. 6,990 to be obtained and purchase the same?

"*A.* To protect ourselves against others, Mr. Mathews in particular, as he had threatened to sue us for making hydrants with loose frost cases, prior to our purchase."

James Flower, dep., pp. 136, 137 (*Tr. Rec.*),

Reviewing now the facts upon which the defence here under consideration is based, we find: —

1. For upwards of *nine* years before the reissue in suit was procured, hydrants such as those for the use of which the defendants are sued, but no one of which infringed upon the original patent, were continuously manufactured, sold and put into use by those who had no community of interest with Thomas R. Bailey, Jr.

2. The number of such hydrants in the United States at the date of the reissue in suit had reached from eleven to twelve thousand, which is about forty per cent of the total number (estimated at thirty thousand) now in use, and obnoxious to the complainants' charge of infringement.

3. Of 676 such hydrants in use by the defendant city of Detroit at the beginning of the present suit, 269, or about forty per cent of the whole number, had been purchased and put into use before the date of the reissue in suit, without infringing upon the original patent.

4. From early in the year 1867 to the spring of 1870, a large part of such adverse manufacture and sale was carried on by the Niagara Manufacturing Company and its successors, Helen M. Lloyd and Samuel R. C. Mathews, in the same city where Thomas R. Bailey, Jr., then resided and did business, and, up to the summer of 1869, in the immediate vicinity of his shop.

5. He admits that he knew of the manufacture of such hydrants by Helen M. Lloyd, and of the use of the same in the city of Lockport in 1869 or 1870; and he had good cause and abundant opportunity for knowing that hydrants of the same construction were manufactured by the Niagara Manufacturing Company in 1867 and 1868, and that some of them were in use by the city of Lockport earlier than 1869, when he says he saw the first one.

6. Meantime, Nov. 16, 1869, a patent was granted upon the inven-

tion of Washburn Race and Samuel R. C. Mathews, of the same city, claiming in terms substantially the same structure as the first claim of the reissue in suit; and under that Race & Mathews patent the manufacture of such hydrants was continued by Samuel R. C. Mathews, at Lockport, N.Y., until the spring of 1870, and by him and R. D. Wood & Co. thereafter at Philadelphia, Pa.

7. The application of Thomas R. Bailey, Jr., for his original patent No. 75,344, was prepared by Munn & Co. from written instructions sent by him to them along with his model for the Patent Office; and he read the specification of that application before signing and swearing to it. He likewise read the same specification attached to that patent within a few days of its issue, and never at any time, by word or act, signified that it did not describe and claim just what he intended to patent thereby.

8. The alleged discovery of discrepancy between the drawing of his original patent and the Patent Office model did not originate with him; but was the result of an investigation conducted by lawyers hired by the complainants nearly eight years after the date of that patent; and was then made the pretext for an application for reissue, which was prepared without any instructions from the patentee and passively executed by him for the sake of a sale to the complainants.

Under these circumstances, therefore, we confidently submit that there was no such inadvertence, accident or mistake in Thomas R. Bailey, Jr.'s, original patent as is contemplated by the statute for the correction of errors by reissue; and that, if it were otherwise, the procurement of such reissue at so late a date, and after years of adverse practice, by others, of the invention in controversy, was unjust, unlawful and fraudulent.

In support of this position we have already quoted from the opinion of the Supreme Court in *Miller* v. *Brass Co.* (104 U. S. 350); and it now suffices to cite the subsequent cases in which the same doctrine has been reiterated and enforced by this Court. They are: —

James v. *Campbell*, 104 U. S. 356, 371, 378.
Mathews v. *Machine Co.*, 105 U. S. 54, 58.
Bantz v. *Frantz*, 105 U. S. 160, 165, 166.
Johnson v. *Railroad Co.*, 105 U. S. 539, 547.

Gage v. *Herring*, 107 U. S. 640, 645.
Clements v. *Odorless Apparatus Co.*, 109 U. S. 641, 649, 650.
Turner & Seymour Co. v. *Dover Stamping Co.*, 111 U. S. 319, 326, 327.
Torrent Company v. *Rodgers*, 112 U. S. 659, 669.
Coon v. *Wilson*, 113 U. S. 268, 277.
Wollensak v. *Reiher*, 115 U. S. 96, 100, 101.
White v. *Dunbar*, 119 U. S. 47, 52.
Newton v. *Furst & Bradley Co.*, 119 U. S. 373, 384, 385.
Ives v. *Sargent*, 119 U. S. 652, 661, 662.
Matthews v. Ironclad Manuf'g Co., 124 U. S. 347, 351.

III. Washburn Race and Samuel R. C. Mathews, the first and original inventors of the structure in controversy; and not Thomas R. Bailey, Jr.

Washburn Race and Samuel R. C. Mathews began the manufacture of hydrants at Seneca Falls, New York, in 1857. January 26, 1858, they took a patent No. 19,206 for improvement in hydrants, which described among other things a cylindrical jacket or casing surrounding the stock of the hydrant, and fitting at its lower end into an annular flange upon the upturned end of the branch of the water-main. The upper end of this jacket or casing was received within another annular flange upon the body of the hydrant, and projecting downward. (*Vide ut supra* pp. 9–12.)

Samuel R. C. Mathews, Q. 3, 4, p. 262 (*Tr. Rec.*).
Exhibit Race & Mathews 1858 Patent, pp. 316, 317 (*Tr. Rec.*).

In September, 1860, they removed to Lockport, New York, and taking another partner, carried on business there, under the firm name of Race, Mathews & Co., down to October 18, 1864, manufacturing pumps, hydrants, and various other articles of iron.

Samuel R. C. Mathews, Q. 4–6, pp. 262, 263 (*Tr. Rec.*).

Early in this period, and even before the removal to Lockport, they changed the construction of their hydrants in several particulars as compared with the drawing of their 1858 patent; and among such changes may be mentioned especially, — the employment of a sleeve-nut at the top of the hydrant for operating the valve-rod, and the provision for end-play of the jacket or casing, by making the distance

between the shoulders, within the annular flanges which received the two ends of the casing, greater than the length of the casing itself.

Samuel R. C. Mathews, Q. 11, pp. 263, 264 (*Tr. Rec.*); Q. 15, pp. 264, 265 (*Tr. Rec.*).

In fall of 1860, lithographs containing representations of the construction of these hydrants were prepared from drawings previously made by Mr. Mathews; and the date of such lithographs is authenticated by reference to items of book accounts made at the time, which show that they were received at Lockport, October 3, 1860.

Samuel R. C. Mathews, Q. 12, p. 264 (*Tr. Rec.*).

By chance, a copy of one of these lithographs has been preserved, and has been put in evidence as "Exhibit Race, Mathews & Co. Lithograph."

See opposite page 200 (*Tr. Rec.*).

[*Note.* The copy of this lithograph in the *Transcript of Record* is wrongly designated "Exhibit Niagara Manufacturing Co. Lithograph."]

It was originally sent by Race & Mathews to the Utica Water Works Company in the summer of 1864, and was thereafter kept in the possession of Marmaduke Clark, an overseer of that company, until about the time it was produced in evidence in this suit.

Marmaduke Clark, Q. 1, 2, p. 235 (*Tr. Rec.*).

The lithograph has also been recognized and authenticated by several other witnesses, who remember to have seen copies of the same imprint between 1860 and 1865.

William P. Field, Q. 11, 12, pp. 199, 200 (*Tr. Rec.*).
Richard H. Button, Q. 11–13, pp. 203, 204 (*Tr. Rec.*).
John McCue, Q. 2, p. 207 (*Tr. Rec.*).
Jared M. Gleason, Q. 12, 13, p. 225 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 13, 14, p. 264 (*Tr. Rec.*).

Now, this lithograph, which was prepared to illustrate the manufacture of Race, Mathews & Co. long before Thomas R. Bailey, Jr., pretends to have given any attention to contriving a hydrant, contains the following description in its letter-press, and a corresponding delineation in its drawing so referred to: —

"3d. The frost cannot leave [heave] the Hydrants, as the outside case (E) is detached, and has room to play up and down two inches, thus accommodating itself to the ground without disturbing the Hydrant or breaking the connection."

Exhibit Race, Mathews & Co. Lithograph, opp. p. 200 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 15, pp. 264, 265 (*Tr. Rec.*).

And the evidence is abundant and uncontroverted that hydrants of this very construction were manufactured by Race, Mathews & Co. at Lockport, and put into use by their vendees during the continuance of that firm, from the fall of 1860 to the fall of 1864.

John McCue, Q. 27, pp. 171, 172 (*Tr. Rec.*); C. Q. 62, 63, p. 176 (*Tr. Rec.*).
William P. Field, Q. 3, p. 199 (*Tr. Rec.*); Q. 13, p. 200 (*Tr. Rec.*).
Richard H. Button, Q. 10, p. 203 (*Tr. Rec.*); Q. 14, p. 204 (*Tr. Rec.*).
John McCue (2d dep.), Q. 2–4, pp. 207, 208 (*Tr. Rec.*).
Jared M. Gleason, Q. 3, p. 225 (*Tr. Rec.*); Q. 15–17, p. 226 (*Tr. Rec.*).
Marmaduke Clark, Q. 3, 4, pp. 235, 236 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 16, 17, p. 265 (*Tr. Rec.*).

Indeed, some of the hydrants of this construction which were originally set in the city of Lockport, N. Y., in 1863, when the water works were first put in there, are still in use in their old places; and one of them has recently been laid bare by excavation, and examined and measured for the purposes of evidence in this suit.

William P. Field, Q. 3–10, p. 199 (*Tr. Rec.*).
John McCue (2d dep.), Q. 3, 4, pp. 207, 208 (*Tr. Rec.*).

In manufacturing these hydrants it was originally intended to give the case two inches end-play, as stated in the letter-press of Exhibit Race, Mathews & Co. Lithograph; but practically in setting the core for the castings, out of extra precaution not to get the iron of the upper flange too thin, the amount of space left for end-play of the case varied from one and one half inches to one and three quarters inches.

William P. Field, Q. 10, p. 199 (*Tr. Rec.*).
John McCue, 2d dep., Q. 4, p. 208 (*Tr. Rec.*).
Jared M. Gleason, Q. 18, p. 226 (*Tr. Rec.*).
Marmaduke Clark, Q. 4, pp. 235, 236 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 17, p. 265 (*Tr. Rec.*).

The construction of these hydrants is represented full size by Exhibit Board Model Race & Mathews Old-Style Hydrant.

Samuel R. C. Mathews, Q. 18, p. 265 (*Tr. Rec.*).

Hence it results that the only material difference between these old-style Race & Mathews hydrants and the new style used by defendants, and complained of as infringements upon the reissue in suit, is that in the former the top of the case was enclosed by an overhanging annular flange, while in the latter the top of the case is unenclosed and is fitted around the hydrant body.

Now, this difference was specifically mentioned in the claim of the Race & Mathews 1869 patent as the distinguishing characteristic of the structure therein claimed; that is to say, the claim of that patent specified not only "The detached case B so combined and arranged with hydrant A as to have an end-play or vertical motion of several inches to compensate for the heaving by frost," which was true also of the old-style Race & Mathews hydrants manufactured as early as 1860; but it contained a further limitation of the structure in these terms: "the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place." (*ut infra*, p. 94.)

Exhibit Race & Mathews 1869 Patent, pp. 324–327 (*Tr. Rec.*). (For copy of drawings *see* opposite p. 64, *Tr. Rec.*)

No such limitation is expressed in the first claim of Bailey's reissue here in suit. It reads as though it was intended to cover just such a structure as these old-style Race & Mathews hydrants which were made and used years before any alleged invention by Thomas R. Bailey, Jr., relating to a hydrant.

One cannot fail to see that the hydrant described and shown in Exhibit Race, Mathews & Co. Lithograph, which was made in 1860, and the hydrants made in accordance therewith from that date onward down to 1866, of which the one originally set in Lockport in 1868, and recently examined, is a sample, answer in every particular the language of the first claim of the reissue in suit.

Each of them embraced "In combination with a hydrant or fire-plug, a detached and surrounding casing C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown," in the Bailey reissue No. 6,990, the first claim of which is in the exact language just quoted; and unless the meaning of this claim can be modified by reference to the body of the specification, it was wholly anticipated by these early Race & Mathews structures.

We have, in considering the fourth branch of defence, (*ut infra* pp. 95, 96) conceded to this first claim of the Bailey reissue the same meaning as that attributed by this Court in the case of *Mathews* v. *Machine Co.* (105 U. S. 54, 59), to the claim of the Race & Mathews patent of 1869, notwithstanding the more specific language of the latter; but it is a serious question whether the first claim of the Bailey reissue should not be given a broader interpretation for want of any express limitation which might enable it to be distinguished from the old-style Race & Mathews structure described and shown in Exhibit Race, Mathews & Co. Lithograph.

The only language of the specification which can be referred to as indicating that the casing C of the claim is to be anything more than "a detached and surrounding casing" is the following: "Said casing extends upward and fits loosely about the plug or hydrant at the portion A′"; and we leave it to the Court to say whether this meagre description can be held to modify the terms of the claim in such manner as to import into it the meaning that the upper part of the casing shall be exposed to view in contradistinction to being covered, as in the old-style Race & Mathews hydrants. If the Court cannot read such a limitation into the first claim of the Bailey reissue No. 6,990, then this brief can end here.

And at any rate *it must constantly be borne in mind that in view of the old-style Race & Mathews hydrants, the whole invention for which any room is left in the structure here in controversy, consists merely in uncovering the top of the casing of such a hydrant, so that it can be seen, and when heaved by the frost can be readily driven back;* although there is not a word of this in the Bailey reissue.

This comparatively narrow invention will now be considered in respect to its origin; and for that purpose we resume the history of the manufacture conducted by the inventors, Washburn Race and Samuel R. C. Mathews, to whom all the improvements embodied in the hydrant represented by Exhibit Race, Mathews & Co. Lithograph were due.

On the 10th of October, 1864, a corporation, entitled the Niagara Manufacturing Company, was organized under the laws of the State of New York; and October 18, 1864, it succeeded to the business previously carried on by Race, Mathews & Co., the members of that firm becoming principal stockholders.

The business of the corporation was chiefly managed by Washburn Race as superintendent, and Samuel R. C. Mathews as secretary and treasurer.

John A. Merritt, Q. 3, 4, p. 167 (*Tr. Rec.*).
Exhibit Certificate of Incorporation of Niagara Manuf'g Co., pp. 168, 169 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 4, 8, pp. 262, 263 (*Tr. Rec.*).

The manufacture of hydrants, like those represented by Exhibit Race, Mathews & Co. Lithograph and Exhibit Board Model, Race & Mathews Old-Style Hydrant, was continued, among other things, down to 1866; but early in that year Race & Mathews decided to make the change which constituted the invention in controversy.

Samuel R. C. Mathews, 19–21, pp. 265, 266 (*Tr. Rec.*).

By reference to book entries made at the time, Mr. Mathews is able to testify that upon one of two occasions of a visit to Buffalo, the expenses of which he charged March 28, 1866, and April 4, 1866, respectively, he directed alterations to be made in the lithograph by which the new invention was represented. It appears further that he entered an item of payment for such lithographs under date of May 10, 1866, which he is able to testify was for the lithographs so altered; and one of these he has put in evidence as "Exhibit Niagara Manufacturing Co. Lithograph." (For copy see opposite p. 339, *Tr. Rec.*)

[*Note.* This copy in the *Transcript of Record* is wrongly marked "Exhibit Race Mathews & Co. Lithograph.]

Samuel R. C. Mathews, Q. 22, p. 266 (*Tr. Rec.*).

Comparison of Exhibit Race, Mathews & Co. Lithograph (opp. p. 200, *Tr. Rec.*) with Exhibit Niagara Manufacturing Co. Lithograph (opp. p. 339, *Tr. Rec.*), will show that the only difference between the drawings thereof is at the upper part of the jacket or casing, which in the latter is made to slide upon and outside of the body of the hydrant, instead of inside of the overhanging annular flange; and this change from what has been termed an "inside" case to an "outside" case, where the joint at the upper end is made, constituted the whole invention. The letter-press of the Exhibit Niagara Manufacturing Co. Lithograph was slightly altered, so as to call for six inches end-play, instead of two inches, specified in

the Exhibit Race, Mathews & Co. Lithograph; but this difference alone was manifestly a matter of mere degree.

The peculiar form of the upper end of the case shown upon the altered lithograph was not deemed to be satisfactory, and, accordingly, Race & Mathews designed a change of shape and set going the work of pattern-making for hydrants to be constructed in accordance with the new invention.

Samuel R. C. Mathews, Q. 23–26, p. 267 (*Tr. Rec.*).

These patterns were made soon after the altered lithograph; and the pattern maker who did the work is able to testify from entries in his time-book kept by him at the time that they were made between May 24 and June 20, 1866.

Jared M. Gleason, Q. 22–31, pp. 227, 228 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 28, pp. 267, 268 (*Tr. Rec.*).
Richard H. Button, Q. 19, 20, pp. 204, 205 (*Tr. Rec.*).

A sample hydrant was made from these patterns soon afterwards to see that the castings fitted all right; but only a few were made before the close of the year 1866, the condition of business being very dull.

Jared M. Gleason, Q. 32–34, p. 228 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 29, p. 268 (*Tr. Rec.*).
Richard H. Button, Q. 21, 22, p. 205 (*Tr. Rec.*).

Their construction was like the Exhibit Race & Mathews Hydrant, which is a full-size hydrant made from those identical patterns.

Jared M. Gleason, Q. 21, p. 226 (*Tr. Rec.*); Q. 32, p. 228 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 29, p. 268 (*Tr. Rec.*).
Richard H. Button, Q. 22, p. 205 (*Tr. Rec.*).

By reference to book of entries made at the time by him, Mr. Mathews is able to testify that the first effort to solicit orders for the new-style hydrant was made in December, 1866, and that the first one was shipped as a sample December 28, 1866.

Samuel R. C. Mathews, Q. 30, p. 268 (*Tr. Rec.*); Q. 35–38, pp. 269, 270 (*Tr. Rec.*).

He himself made a journey to Baltimore, Philadelphia and New York in January, 1867, for the purpose of introducing such hy-

drants; and shortly afterwards the first sales, as distinguished from samples sent out to solicit orders, were made.

Samuel R. C. Mathews, Q. 31, p. 268 (*Tr. Rec.*).

From the sales book of the Niagara Manufacturing Company it appears that "1 No. 1 Fire Hydrant (new pattern)" was sold to Winsor Bros. & Minnies, Oil City, Pa., February, 9, 1867, and had been shipped January 21; and also that "1 No. 1 Fire Hydrant (new pattern)" was sold to the Jersey City Water Works, February 11, 1867.

Samuel R. C. Mathews, Q. 38, pp. 269, 270 (*Tr. Rec.*); Q. 39, p. 270 (*Tr. Rec.*).

Besides these book entries and the testimony of Mr. Mathews in respect to them, we have, as to this hydrant sent to Jersey City, the strongest corroborative proof.

John F. Ward a civil engineer, and at that time superintendent of the Jersey City Water Works, wrote an order February 6, 1867, to the Niagara Manufacturing Company, for one of their fire hydrants as a sample, and the same was soon afterwards received by him. His name appears upon the sales book in connection with the charge for the hydrant of "new pattern" so sent; and he testifies that its construction was like Exhibit Race & Mathews Hydrant, with the exception of the hemispherical bell at the end of the elbow for connection with the water-main.

John F. Ward, Q. 1-5, p. 259 (*Tr. Rec.*); Q. 8, 9, p. 260 (*Tr. Rec.*).
Exhibit Ward Letter, p. 303 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 43, p. 271 (*Tr. Rec.*).

Moreover, the original shipping receipt for this hydrant has been put in evidence; and Mr. Ward, upon reference to an affidavit made by him Sept. 27, 1869, in relation to the same hydrant, is able to testify that he saw it on or about March 10, 1867.

Exhibit Railroad Receipt No. 2, p. 304 (*Tr. Rec.*).
John F. Ward, Q. 10-12, p. 260 (*Tr. Rec.*).
Exhibit Ward Affidavit, pp. 309, 310 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 42, p. 271 (*Tr. Rec.*).

Furthermore, it appears from entries in the sales book of the Niagara Manufacturing Company, that besides this single hydrant shipped to the Jersey City Water Works, Feb. 11, 1867, eleven more were sold to Jersey City during that spring, namely: *three*, March 21, 1867; *five*, April 10, 1867; and *three*, April 16, 1867; all of which

appear, by entries in the minutes of the Board of Water Commissioners of that city, to have been paid for at various dates between March 18, 1867, and June 3, 1867.

James Reid, Q. 1–4, p. 243 (*Tr. Rec.*).
Exhibit Reid Former Deposition, p. 315 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 44, 45, 47, pp. 271–273 (*Tr. Rec.*).

One of these very eleven hydrants so sold and delivered to the Jersey City Water Works between March 21 and April 16, 1867, has been dug up from the place where it was originally set in Jersey City, and put in evidence as "Exhibit Race & Mathews Hydrant."

Robert B. Coar, Q 1–19, pp. 236–238 (*Tr. Rec.*).
James Carroll, Q. 1–19, pp. 243–245 (*Tr. Rec.*).
John F. Ward, Q. 8, p. 260 (*Tr. Rec.*).
Samuel R. C. Mathews, Q 43–45, p. 271 (*Tr. Rec.*).

The next hydrant of this kind sold after the first one to Jersey City was sent to the Elmira Water Works Company, of which Isaac S. Hobbie was superintendent, and was entered upon the sales book of the Niagara Manufacturing Company, February 27, 1867.

Samuel R. C. Mathews, Q. 38, pp. 269, 270 (*Tr. Rec.*); Q. 47, pp. 272, 273 (*Tr. Rec.*).

That hydrant was dug up at the time of taking testimony in the former suit of *Mathews* v. *Boston Machine Company*, and put in evidence therein as "Complainants' Exhibit 8." It was before the Circuit Court and the Supreme Court at the hearings of that cause; but, being ordered outside of the Capitol building by reason of its bulk, it disappeared in course of time and could not be found for use in this suit.

Samuel R. C. Mathews, Q. 40, 41, pp. 270, 271 (*Tr. Rec.*).
Isaac S. Hobbie, Q. 2–20, pp. 214–216 (*Tr. Rec.*).
Exhibit Isaac S. Hobbie's Former Deposition, pp. 313, 314 (*Tr. Rec.*).
Exhibit Record Mathews *v.* Boston Machine Co., pp. 566, 567 (*Tr. Rec.*). (Int. 30, Samuel R. C. Mathews' Former Dep.)

This hydrant was received at Elmira, N. Y., March 7, 1867, as appears from an original entry in the day-book kept by Isaac S. Hobbie at the time, and remained in the place where it was soon afterwards set, until taken up in the spring of 1876 to be used as an exhibit in the former suit mentioned.

Isaac S. Hobbie, Q. 5–13, pp. 214, 215 (*Tr. Rec.*); Q. 15, pp. 215, 216 (*Tr. Rec.*).
Exhibit Isaac S. Hobbie's Former Deposition, pp. 313, 314 (*Tr. Rec.*).
Exhibit Record Mathews *v.* Boston Machine Co., pp. 546, 547 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 40, p. 270 (*Tr. Rec.*).

The next hydrant of the same construction which has been proved in detail, independently of Mr. Mathews' testimony, is one which is still in use within the yard of the Utica Steam Cotton Mill at Utica, New York, and was viewed by complainants' counsel (as also by James Flower and Thomas R. Bailey) at the time of taking evidence in regard to it.

Joseph J. Illingworth, Q. 6, p. 231 (*Tr. Rec.*).

This hydrant was ordered from the Niagara Manufacturing Company by E. Blauvelt, superintendent of the Utica Water Works Company, April 17, 1867; and was shipped May 6, 1867, and paid for May 15, 1867. It was procured for the Utica Steam Cotton Mill, and delivered to the latter May 11, 1867.

Exhibit Mathews-Blauvelt Letter No. 1, p. 304 (*Tr. Rec.*).
Exhibit Utica Water Works Bill, p. 305 (*Tr. Rec.*).
Exhibit Utica Steam Cotton Mill Bill, p. 305 (*Tr. Rec.*).
Exhibit Mathews-Blauvelt Letter No. 2, p. 306 (*Tr. Rec.*).
Charles W. Pratt, Q. 1, 2, pp. 233, 234 (*Tr. Rec.*).
George H. Wiley, C. Q. 4, pp. 234, 235 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 47, pp. 272, 273 (*Tr. Rec.*); Q. 52, p. 274 (*Tr. Rec.*).

It further appears from a diary regularly and consecutively kept by the engineer of the Utica Steam Cotton Mill, and authenticated by his testimony, that this hydrant was set in the back yard of that mill June 25, 1867, where it has remained ever since; and in addition to this, the bill of the overseer of the Utica Water Works Company for setting this hydrant, together with the entry upon the journal of the Utica Steam Cotton Mill of the payment for it June 29, 1867 have likewise been verified.

Joseph J. Illingworth, Q. 1–14, pp. 231, 232 (*Tr. Rec.*).
George H. Wiley, Q. 1–3, pp. 234, 235 (*Tr. Rec.*).
Marmaduke Clark, Q. 5, p. 236 (*Tr. Rec.*).
Exhibit Marmaduke Clark Bill, p. 306 (*Tr. Rec.*).

One more hydrant of this construction has also been proved with minuteness and identified as still in existence. There appears on the records of the Common Council of the city of Lockport, N. Y., the following minute under date of Monday, July 1, 1867, viz.: "The matter of the breakage of the private hydrant at O. C. & E. C. Wright & Co.'s was referred to the Committee on Fire and Water." Other records of that time were burned with the building where they were kept Jan. 5, 1881, so that this matter cannot be further

traced. But Oliver C. Wright, one of the firm mentioned, has testified that the style of his firm from 1864 to September, 1867, was O. C. & E. C. Wright & Co.; that when the water works of Lockport were first put in during the year 1863, one of the old-style Race & Mathews hydrants was purchased by private subscription and set in front of the store where the firm of which Oliver C. Wright was a member did business. In 1867 this old hydrant got broken by some fault of the fire department, and the city authorities were petitioned to replace it. This was done, and the hydrant substituted for the broken one was procured from the Niagara Manufacturing Company and set shortly after the action of the Common Council recorded July 1, 1867. The sales book of the Niagara Manufacturing Company shows that the hydrant was sold to the city of Lockport, July 29, 1867, and it is still in the place where it was originally set, and is constructed like the Exhibit Race & Mathews Hydrant.

Charles H. Squires, Q. 3, 4, p. 197 (*Tr. Rec.*).
Oliver C. Wright, Q. 1–15, pp. 197, 198 (*Tr. Rec.*).
William P. Field, Q. 14–19, p. 200 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 58, pp. 275, 276 (*Tr. Rec.*).

Hence it results that four hydrants embracing the invention in controversy, and manufactured and sold by the Niagara Manufacturing Company before August, 1867, have been definitely located and identified and proved beyond a doubt or cavil.

To recapitulate, they are: —

1. "Complainants' Exhibit 8," in the former suit of *Mathews* v. *Boston Machine Co.*, originally sold to Elmira Water Works, Feb. 27, 1867, dug up in the spring of 1876, and put in evidence in that suit, and used at the hearings before the Circuit Court and Supreme Court, but since lost.

2. "Exhibit Race & Mathews Hydrant," one of eleven sold to Jersey City Water Works between March 21, 1867, and April 16, 1867, recently dug up from its original place, and put in evidence in this suit.

3. Hydrant in the back yard of the Utica Steam Cotton Mill, Utica, N. Y., sold May 6, 1867, and still in the place where it was originally set.

4. Hydrant in front of O. C. & E. C. Wright's store in Lockport, N. Y., sold July 29, 1867, and still in the place where it was originally set.

All this indicates an established manufacture of such hydrants by the Niagara Manufacturing Company during the year 1867, and furnishes the strongest corroboration of the testimony of Samuel R. C. Mathews, Jared M. Gleason and Richard H. Button, that the patterns for such hydrants were made and completed early in the summer of 1866; that a few sample hydrants were constructed from these patterns shortly afterwards; that one of them was sent off late in that year; and that early in 1867 the manufacture and sale of such hydrants were regularly established by the Niagara Manufacturing Company. It likewise corroborates the testimony of Samuel R. C. Mathews, Robert B. Coar, James Carroll and John F. Ward, that the first hydrant of this construction was sold to Jersey City Water Works, February 11, 1867; and it renders certain the testimony of Samuel R. C. Mathews, coupled with a list of sales taken from the books of the Niagara Manufacturing Company, that the number of such hydrants sold during the year 1867 amounted to 516.

Samuel R. C. Mathews, Q. 47, pp. 272, 273 (*Tr. Rec.*).

The manufacture of hydrants like Exhibit Race & Mathews Hydrant, thus established, was continued by the Niagara Manufacing Company until August, 1868, when it failed, and the business was taken up by its principal creditor, Helen M. Lloyd, who continued it, including the manufacture of the same kind of hydrants until the summer of 1869. Then Mr. Samuel R. C. Mathews engaged in the manufacture of such hydrants on his own account and continued it in the city of Lockport until the spring of 1870.

Samuel R. C. Mathews, Q. 4, p. 262 (*Tr. Rec.*); Q. 65–67, p. 277 (*Tr. Rec.*).

Meantime Washburn Race and Samuel R. C. Mathews filed their application in the Patent Office, October 29, 1868, and received thereon patent No. 96,959, November 16, 1869, for this very invention of an improvement upon their old-style hydrant, by which the case with capacity for end-play was made to pass outside of the body of the hydrant instead of shutting under a flange thereon.

Exhibit Race & Mathews Application of October 29, 1868, pp. 59–64 (*Tr. Rec.*).

The interest of Washburn Race in this patent (as also in the former patent of 1858) was assigned to Samuel R. C. Mathews, who, in the spring of 1870, removed to Philadelphia, Pa., and entered into arrangements with Messrs. R. D. Wood & Co., of that city, to

manufacture hydrants under those patents like Exhibit Race & Mathews Hydrant. Such manufacture has continued down to the present time, — a period of thirteen years and a half, at the date of the filing of complainants' bill in the present suit; and during this time the number of such hydrants so manufactured by Samuel R. C. Mathews and R. D. Wood & Co. had amounted to from twenty to twenty-two thousand; all of which are now obnoxious to the complainants' charge of infringement under the reissue in suit.

Samuel R. C. Mathews, Q. 4, p. 262 (*Tr. Rec.*); Q. 75, p. 279 (*Tr. Rec.*).

The result of all this evidence is, therefore, that the invention in controversy was an improvement engrafted by Race & Mathews upon the structure which they had previously been manufacturing either as principals or managers from 1860 to 1866; that they reduced this invention to practice in the summer of 1866, and introduced it into their manufacture at once; that from the beginning of the year 1867 hydrants, embracing this invention, were regularly and continuously manufactured and sold by the corporation under their management; that such manufacture and sale, in which both or one of them participated, has never since ceased; and that from November 16, 1869, the date of the grant of the Race & Mathews patent, No. 96,959, Samuel R. C. Mathews, the grantee thereof, and his associates and assignees, R. D. Wood & Co., have always asserted their exclusive right to the invention under that patent.

In striking contrast to all this were the acts and circumstances attending the alleged invention of Thomas R. Bailey, Jr. He had never been engaged in the manufacture of hydrants at the time of his pretended origination of this invention; nor did he attempt to make a hydrant until the fall of 1867, — more than a year after Race & Mathews had embodied the invention in a practical structure. He did not describe, show or suggest the invention in his original patent applied for September 16, 1867, and granted March 10, 1868.

He never made more than half a dozen hydrants in all, and ceased the attempt in 1869 under threat of prosecution from Race & Mathews; and he never publicly asserted any claim to this invention, until the plaintiffs procured him to apply for and obtain the reissue in suit, — nine years after the open and continuous manufacture of hydrants embodying the same invention by Race & Mathews and their associates.

This evidence will now be considered in detail.

Some time in July, 1865, Thomas R. Bailey, Jr., and his brother, George Bailey, formed a partnership for carrying on machinists' business at Lockport under the firm name of T. R. Bailey's Sons.

Their shop was about two hundred feet from the place of business of the Niagara Manufacturing Company, and remained in the same place down to the time when Samuel R. C. Mathews left Lockport, which was, as has been already shown, in the spring of 1870.

Thomas R. Bailey, C. Q. 65–70, p. 73 (*Tr. Rec.*).
William W. Trevor, Q. 4–7, pp. 200, 201 (*Tr. Rec.*).

Up to that time, July, 1865, Thomas R. Bailey, Jr., had been employed at various places as a machinist, but had never worked upon hydrants.

Thomas R. Bailey, C. Q. 58, p. 72 (*Tr. Rec.*); C. Q. 66, 67, p. 73 (*Tr. Rec.*).

He testifies that he began work on patterns for the first hydrant which he ever made for practical use in July, 1867; although it is to be remarked that this date, as also most others which he assigns for his hydrant work, is wholly without corroboration from book entries or written memoranda made at the time.

Thomas R. Bailey, C. Q. 74–78, p. 74 (*Tr. Rec.*); C. Q. 148, pp. 79, 80 (*Tr. Rec.*).

He says: "The hydrant was finished some time in August; the very last of August or the first of September, 1867."

Thomas R. Bailey, C. Q. 82, p. 74 (*Tr. Rec.*).

He further says that the working drawings for this hydrant were made after the 1st of January, 1867, late in that winter or early spring; but neither the drawings nor the patterns are now in existence; nor did he ever make any book entry in relation to them.

Thomas R. Bailey, C. Q. 83–88, pp. 74, 75 (*Tr. Rec.*); C. Q. 146, p. 79 (*Tr. Rec.*).

It appears from the records of the proceedings of the Common Council of the city of Lockport, that November 11, 1867, permission was given to T. R. Bailey's Sons "to put in one of their new patent hydrants on the line of the Buffalo and Transit streets water-pipe extension"; and this first hydrant was afterwards set on Transit Street.

Charles H. Squires, Q. 4, pp. 154, 155 (*Tr. Rec.*).
Thomas R. Bailey, Q. 27, 28, pp. 68, 69 (*Tr. Rec.*); C. Q. 303, pp. 94, 95 (*Tr. Rec.*).
James Clapham, Q. 4–8, p. 156 (*Tr. Rec.*).
John McCue, Q. 33–37, pp. 172, 173 (*Tr. Rec.*).

This was subsequently taken up, and no one knows what became of it.

Thomas R. Bailey, C. Q. 92, 93, p. 75 (*Tr. Rec.*).
James Clapham, Q. 9–11, pp. 156, 157 (*Tr. Rec.*).
John McCue, Q. 38, p. 173 (*Tr. Rec.*).

Between November 11, 1867, and August 16, 1869, four or five more hydrants were made by T. R. Bailey's Sons; and these, with the first one just mentioned, making five or six, were all the hydrants which were ever manufactured by Thomas R. Bailey, Jr., or by any concern with which he has been connected in business.

Thomas R. Bailey, Jr., Q. 29, p. 69 (*Tr. Rec.*); C. Q. 309, p. 95 (*Tr. Rec.*).

He testifies that he thinks the lot of four or five hydrants, after the first one, was made in 1868; but he is evidently mistaken, for he acknowledges that they were made for James Fleming with the expectation that they would be put down in the city of Lockport upon the East Avenue and Washburn Street water-pipe extension, the contract for which was awarded to James Fleming, July 6, 1869, as appears by the city records.

Thomas R. Bailey, C. Q. 89, 90, p. 75 (*Tr. Rec.*); C. Q. 96, p. 75 (*Tr. Rec.*); C. Q. 104, 105, p. 76 (*Tr. Rec.*).
Charles H. Squires, Q. 6, p. 156 (*Tr. Rec.*).
James Fleming, Q. 3–6, p. 164 (*Tr. Rec.*).
John McCue, Q. 29–31, p. 172 (*Tr. Rec.*).

James Fleming testifies that after these Bailey hydrants had been delivered on the ground he received a letter from Washburn Race and Samuel R. C. Mathews, notifying him that the hydrant proposed to be manufactured by Bailey Bros. was an infringement upon the patent granted to them (Race & Mathews) January 28 [26], 1858, and that they intended to prosecute all such infringements.

A similar letter was also sent to the mayor of the city.

This put a stop to the use of the Bailey hydrants; and instead of them, the Race & Mathews new-style hydrants, with outside case, having end-play, like Exhibit Race & Mathews Hydrant, were put down.

Thomas R. Bailey, C. Q. 105–114, pp. 76, 77 (*Tr. Rec*).
James Fleming, Q. 7, 8, pp. 164, 165 (*Tr. Rec.*); C. Q. 16, p. 165 (*Tr. Rec.*).
Exhibit Race & Mathews–Fleming Letter, p. 166 (*Tr. Rec.*).
John McCue, Q. 32, p. 172 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 63, 64, pp. 276, 277 (*Tr. Rec.*).

No attempt was afterwards made by Thomas R. Bailey, Jr., or the firms with which he was connected in business, to manufacture another hydrant of any kind. Those which had been furnished to James Fleming for the East Avenue and Washburn Street water-pipe extension, and had been refused on account of the threat of prosecution from Race & Mathews, lay upon the ground where they had been delivered, for two or three years, and were finally taken back by Thomas R. Bailey, Jr., to his shop, and broken up and sold for old junk, except one which he set in the ground in front of the old shop of the Niagara Manufacturing Company, then occupied by him, between 1871 and 1876. This single hydrant, which alone remains of his manufacture, has been dug up by the defendants in this suit and put in evidence as "Exhibit Bailey Hydrant."

Thomas R. Bailey, C. Q. 91, 94, p. 75 (*Tr. Rec.*); C. Q. 95–98, p. 75 (*Tr. Rec.*); C. Q. 100, 101, pp. 75, 76 (*Tr. Rec.*); C. Q. 289–293, p. 93 (*Tr. Rec.*); C. Q. 299–302, p. 94 (*Tr. Rec.*).
James Fleming, Q. 8–11, p. 165 (*Tr. Rec.*).
John McCue, Q. 32, p. 172 (*Tr. Rec.*); Q. 42–50, pp. 173, 174 (*Tr. Rec.*).
William W. Trevor, Q. 7–17, pp. 201, 202 (*Tr. Rec.*).
Richard H. Button, Q. 33–37, p. 206 (*Tr. Rec.*).

The conduct of Thomas R. Bailey, Jr., in respect to this manufacture, is well indicated by the following piece of testimony given by him: —

"*C. Q.* 307. What became of the patterns for the first hydrant which you made in the summer of 1867?

"*A.* I think they have been worked up into some other kind of patterns.

"*C. Q.* 308. How long did you keep them entire in condition to be used for hydrant castings?

"*A.* I think until the last four or five years. I wouldn't say positive; I think it was until about 1879.

"*C. Q.* 309. *And during all the twelve years or thereabouts of their existence you never attempted to make hydrant castings from them after the city of Lockport refused to permit the lot contracted for by James Fleming to be put down, did you?*

"*A. No, sir.*"

Thomas R. Bailey, dep., p. 95 (*Tr. Rec.*).

He tries to explain this by saying that he had not the means to put such hydrants on the market properly.

Thomas R. Bailey, Q. 42, p. 70 (*Tr. Rec.*).

But he says he advertised them; that he employed anywhere from three to fifteen men in his shop from year to year; that he held

himself ready to fill orders for hydrants down to his contract with the complainants in 1876; and that he had facilities for such manufacture.

Thomas R. Bailey, Q. 43, p. 70 (*Tr. Rec.*); C. Q. 313-318, pp. 95, 96 (*Tr. Rec.*); Q. 476-478, p. 112 (*Tr. Rec.*).

All his attempts to explain why he did nothing further are negatived by his conduct at the time; for, if he had been conscious of the right to manufacture his hydrants, he surely would not have destroyed those which he had made, except the one which he put in front of his own shop for private use.

"*C. Q.* 89. How many hydrants in all did you make after this first one; and by you, I mean either yourself or the firm of T. R. Bailey's Sons?

"*A.* It was five or six; I don't remember.

"*C. Q.* 90. When were they made?

"*A.* In the summer of 1868.

"*C. Q.* 91. *What became of them?*

"*A.* One of them is in Lockport now; *I think the rest were sold for old junk;* but I don't remember."

Thomas R. Bailey, dep., p. 75 (*Tr. Rec.*).

The question here under consideration is the significance of the conduct of Thomas R. Bailey, Jr., indicating whether or not he *believed* at that time that he was the original and first inventor of what is now claimed in his reissue.

He does not even attempt to explain why he passively submitted to the rejection of his hydrants by the city of Lockport on account of the adverse claims of Race & Mathews. He has not said that he was deterred from continuing the manufacture of his hydrants through fear of the Race & Mathews patent of 1858, under which he was threatened.

On the contrary he testifies: —

"*C. Q.* 289. When you learned that Mr. Mathews had threatened to sue the city of Lockport if it suffered your hydrants with loose cases having end play to be put into use, didn't you take interest enough in your patent No. 75,344 to examine it, or to take advice upon it to ascertain whether you really had any right to construct hydrants such as those Mr. Mathews threatened?

"*A.* No, I took no advice from anybody, because I knew I had the right to manufacture them.

"*C. Q.* 290. How did you know that you had such a right?

"*A.* From my common sense."

Thomas R. Bailey, dep., p. 93 (*Tr. Rec.*).

But this testimony, so long after the event, is wholly belied by his conduct then. Throughout all the humiliating circumstances attending the rejection of his hydrants by the city of Lockport, and the substitution therefor of Race & Mathews hydrants of the very construction now covered by the first claim of the reissue in suit, Thomas R. Bailey, Jr., never uttered a word to anybody who has been called to testify, asserting any right to manufacture hydrants with outside cases having end-play.

He himself does not testify that he opened his mouth to protest that he had any rights in the premises which anybody need take notice of.

And James Fleming, to whom, of all others, he would have asserted his right, if he had believed he had any, is utterly silent upon the matter, though called by the plaintiffs to testify on their behalf.

See James Fleming, Q. 8, 9, p. 165 (*Tr. Rec.*).

Nor is it mere silence on the part of plaintiffs' witnesses that tells against Thomas R. Bailey, Jr.'s, present claim.

William W. Trevor, who carried on business in the adjoining shop, testifies as follows: —

"*Q.* 18. How long have you known Thomas R. Bailey, who was Thomas R. Bailey, Jr., in 1865?

"*A.* I think since 1860.

"*Q.* 19. *Did you ever, during all the time he lived and did business in Lockport, hear him claim, or know of his claiming to be the inventor of any thing pertaining to the frost case of a hydrant?*

"*A.* *I did not.*

"*Q.* 20. Did you ever know of his claiming, during that time, to be the inventor of anything else pertaining to a hydrant; and if so, what?

"*A.* He claimed to be the inventor of a valve to a hydrant.

"*Q.* 21. What kind of a valve?

"*A.* What is called a ring valve or a cylinder valve."

William W. Trevor, dep., p. 202 (*Tr. Rec.*).

Or, in other words, while he did announce to others his invention of a cylinder valve, for which he took his original patent, No. 75,344; he never asserted to any one that he was the inventor of a loose case with end-play claimed in his reissue No. 6,990.

To the same effect is the testimony of

Richard H. Button, Q. 42, p. 207 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 68, 69, p. 278 (*Tr. Rec.*).

On the contrary, he talked with others about putting set-screws into the bottoms of the cases of his hydrants to prevent the cases from having end-play; and the Exhibit Bailey Hydrant, when dug up, was found to have two holes in the bottom of its case, in one of which the set-screw still remained.

John McCue, C. Q. 69–71, p. 177 (*Tr. Rec.*); Q. 78–82, pp. 177, 178 (*Tr. Rec.*).
Edwin Saxton, C. Q. 32–37, pp. 181, 182 (*Tr. Rec.*).
William W. Trevor, Q. 14, 15, p. 202 (*Tr. Rec.*).
Richard H. Button, Q. 35–39, p. 206 (*Tr. Rec.*).
John McCue (2d dep.), Q. 6, 7, p. 208 (*Tr. Rec.*).

Thomas R. Bailey, Jr., when recalled for complainants' evidence in reply, attempted to explain that this set-screw found in the case of Exhibit Bailey Hydrant was, he *believed*, put in there for the purpose of chucking the case in the lathe while boring out the end of it.

Thomas R. Bailey (2d dep.), Q. 9–11, pp. 376, 377 (*Tr. Rec.*).

But this does not explain the testimony of John McCue, that at the time of the trouble about the hydrants for the Fleming contract, Bailey told him that set-screws could be put into the cases to prevent end-play (C. Q. 69, 70, p. 177, *Tr. Rec.*); and that Birdsall Holly had advised him (Bailey) to put set-screws in (2d dep., Q. 6, 7, p. 208, *Tr. Rec.*); nor does it agree with the positive testimony of Edwin Saxton, a former workman for Bailey and a witness for complainants, that the set-screw was put into the base of the sliding case to get over the difficulty with the Niagara Manufacturing Company on a patent claimed by it for the sliding case (C. Q. 33–37, p. 182, *Tr. Rec.*).

Why was not this workman, or Richard H. Button, the other workman for Thomas R. Bailey, Jr., interrogated by the complainants' counsel as to the alleged use of the set-screws for chucking the case in a lathe? The story is absurd on its face.

The supposition that the case could not be held in a lathe without drilling and tapping two holes in the casting and cutting set-screws to fit, is too violent to be believed on the mere suggestion of one witness, who does not dare to state it squarely, but simply puts it on his belief.

Moreover, why was the set-screw left to remain in the bottom of the case of Exhibit Bailey Hydrant ever since it was set in the

ground? It does not matter that it may have been insufficient to prevent the upward lifting of the case by frost. The question is only as to the original intent of Thomas R. Bailey, Jr., in putting the set screw there at all. We are not here concerned with the efficiency of the means, but with the conduct of the man and its bearing upon the question whether he acted like an inventor of the very thing which he was striving to prevent from operating.

Again, while admitting by his silence and by the absence of testimony that he never in the presence of anybody asserted any claim to have invented a hydrant with an outside sliding case; he testifies that he has no remembrance what kind of hydrants were put down in place of his, upon the East Avenue and Washburn Street water-pipe extension, notwithstanding that they were actually like Exhibit Race & Mathews Hydrant, having outside cases with end-play, and have ever since remained where they were originally set; and notwithstanding also that he says he probably saw his own hydrants lying on the ground there a hundred times.

Thomas R. Bailey, C. Q. 496–498, pp. 114, 115 (*Tr. Rec.*).

He now recognizes the effect of his former silence and inaction as the strongest evidence that he did not then make any claim of invention such as he long afterwards put into his reissue; and he therefore attempts to excuse it by denying knowledge of the adverse claim and manufacture of Race & Mathews. *But his zeal on this behalf has betrayed him into downright falsehood!*

March 6, 1884, he testified as follows:—

"*Q.* 457. From the time of receiving Letters Patent No. 75,344, *did you ever see a hydrant manufactured by Samuel R. C. Mathews, with a loose case substantially like* Exhibit Bailey's Original Model?

"*A. I don't think I ever did.*

"*Q.* 458. *Were any of that character manufactured in the city of Lockport from* 1868 *to* 1870 *that you know of or saw?*

"*A. Not to my recollection.*"

. . . . . .

"*Q.* 471. State whether or not from the date of receiving your original letters patent down to the making of this contract with Flower Bros. *you had any information*, and if so, what, *that any parties were making hydrants substantially like* Exhibit Bailey's Original Model other than what you learned at Saginaw as you have already stated [*i.e.*, in 1875].

"*A. I have none.*"

Thomas R. Bailey, dep., pp. 110, 111 (*Tr. Rec.*).

Feb. 29, 1884, he had testified thus: —

"*C. Q.* 131. Then didn't you understand at the time that the manufacture of hydrants having loose cases with end-play went on, among other things, from the time when you first knew that Mrs. Lloyd was carrying on such manufacture until Mr. Mathews left Lockport?

"*A.* Sometime after I learned that Mrs. Lloyd was running the shop *I heard they were making hydrants with loose cases with end play.* I don't know how long it continued. It might have continued right up to the day he left. I couldn't say. I don't know."

Deposition of Thomas R. Bailey, p. 78 (*Tr. Rec.*).

July 10, 1884, he testified as follows: —

"*Q.* 39. Please carefully examine Exhibit Race & Mathews Hydrant, understanding that the Exhibit Board Model Race & Mathews New Style Hydrant substantially represents the construction of the same and without taking the said Hydrant apart, and state where and when, as near as you can now remember, you first saw a hydrant of this pattern.

"*A. I think it was about the year* 1869 *or* 1870 *on Main Street in the city of Lockport*, near what is called the Union Hotel; my attention was called to it from the fact of a hydrant having been broken by a team running against it; it was about being replaced with a new one."

Thomas R. Bailey, 2d dep., p. 382 (*Tr. Rec.*).

Thus he swears that he has no recollection of seeing or of knowing to be manufactured in the city of Lockport, from 1868 to 1870, any hydrant of the character which he afterwards swears he did see in the city of Lockport about the year 1869 or 1870, and which he had before sworn he knew were being manufactured by Mrs. Lloyd before Mr. Mathews left Lockport. If there ever was a case where the rule *falsus in uno, falsus in omnibus*, should be applied to discredit the entire testimony of a witness, it certainly is this; where it is a material point, whether the silence of the alleged inventor at a time when, if at all, he was called upon to assert his claim, may be excused by want of knowledge that others were acting adversely to him.

The Santissima Trinidad, 7 Wheaton, 283, 338.
Union Sugar Refinery v. *Matthiessen*, 3 Clifford, 639, 654.

Finally, upon this question of conduct, as affecting the credibility of testimony given long after the event, we have to consider another situation where Thomas R. Bailey was called upon to act, and where his inaction then, tells against his present pretensions.

It is in evidence that Race & Mathews made application for a patent covering the invention of a hydrant provided with an outside sliding case, October 29, 1868.

Exhibit Race & Mathews Application of October 29, 1868, pp. 59–64 (*Tr. Rec.*).

On December 17, 1868, a communication was sent from the Patent Office to the patent solicitors for Race & Mathews, in these words: —

"A rejection is declared on reference to T. R. Bailey's hydrant, patented March 10, 1868, the model of which especially shows the whole invention."

Exhibit Race & Mathews Application, of October 29, 1868, p. 61 (*Tr. Rec.*).
Exhibit Mahon Copy, p. 196 (*Tr. Rec.*).
Exhibit Commissioner's Letter, p. 306 (*Tr. Rec.*).

Now, the conduct of these inventors was unequivocal and straightforward. Upon receipt of information of this rejection, Samuel R. C. Mathews, to whom the interest of Washburn Race in the joint application had been assigned, and who was conscious that the invention notoriously belonged to Race and himself, went directly to Thomas R. Bailey, Jr., to get him to remove the obstacle to the patent as a simple act of justice.

Mr. Mathews testifies as follows: —

"*Q.* 50. What action did you personally take about it?

"*A.* I called to see Mr. Bailey. I won't undertake to repeat the conversation. It is a good many years since. I can give the substance of it. It was that Mr. Race and myself had applied for a patent on an outside casing having end-play, and it had been rejected on reference to his model, and I asked him to sign a disclaimer as to any invention in that feature as he knew that we, Mr. Race and myself, were the inventors of it; but he refused to do anything in the matter."

Samuel R. C. Mathews, dep., p. 273 (*Tr. Rec.*).

The important fact in this connection is that Thomas R. Bailey, Jr., thus early received information that Race & Mathews had made application for a patent for the very thing which, in the first claim of his reissue in suit, he has claimed as his own invention; and he does not deny this, but substantially acknowledges it.

His testimony is as follows: —

"*C. Q.* 273. . . . Did not that conversation take place shortly after December 17, 1868: that is to say late in the year 1868 or early in the year 1869?

"*A.* It is my impression that it was in the winter some time.

"*C. Q.* 274. And it is your impression that the conversation referred to happened in the winter next following that in which your said patent [*i.e.*, No. 75,344] was issued?

"*A.* It is.

"*C. Q.* 275. *Did Mr. Mathews then and there tell you that he had made application for a patent for a hydrant having a loose case with end-play, or give you to understand in substance that such was the fact?*

"*A. Well, I understood it. But I couldn't say from what source, whether from him or some other.*"

. . . . . .

"*C. Q.* 279. When you say in the last preceding answer, 'I understood the fact that he had made application for a patent on his hydrant,' you mean, do you, his hydrant with loose case having end-play?

"*A.* That is as I understood it."

Thomas R. Bailey, dep., pp. 91, 92 (*Tr. Rec.*).

To be sure he says he "don't think" Mr. Mathews told him that the Race & Mathews application had been rejected on his (Bailey's) model in the Patent Office; but that is immaterial in view of the fact that Mr. Mathews appeared before him as a claimant of the invention in controversy, with the request that Bailey should stand out of the way of the grant of a patent for it to Race & Mathews.

What then did Thomas R. Bailey, Jr., reply to such a request? Surely, if he had been conscious that he was an original inventor and *à fortiori*, if he had believed himself to be the first inventor of the thing he was asked to disclaim, he would then and there have asserted his right to the invention himself; but he did nothing of the kind.

His testimony is this: —

"Mr. Mathews asked me to put in a disclaimer on my patent. I think he said upon the case — the loose case. I told him that I should not do it, the patent was mine and I proposed to keep it. I think that was about all that was said at the time."

Thomas R. Bailey, Q. 33, p. 69 (*Tr. Rec.*).

And again he testifies on the same subject: —

"He asked me to put in a disclaimer, and I told him I shouldn't do it, or words to that effect. That I had a good thing and I was going to keep it."

Thomas R. Bailey, C. Q. 283, p. 92 (*Tr. Rec.*).

No natural exclamation of surprise such as would come from a man who for the first time learned that another was seeking a patent for his invention; but merely the answer of a selfish man who finds

that he has accidentally obtained an advantage over a rival and proposes to keep it!

The whole situation cannot be better summed up than in the following answer of Samuel R. C. Mathews under cross-examination: —

"I asked him to disclaim it for the very reason that I knew and believed him to know that he had no invention in it, and because the reference to his model in the rejection of my patent required, as I supposed, either such a disclaimer, or else that we should go into interference. *I thought that, in his refusal to do anything in the matter, he was acting like a dog in the manger; could not claim the feature himself, and would prevent me from getting it if he could.*"

Samuel R. C. Mathews, C. Q. 136, p. 288 (*Tr. Rec.*).

How the Race & Mathews patent, No. 96,959, of November 16, 1869, was afterwards obtained, does not concern the question here under consideration, which is, whether the conduct of Thomas R. Bailey, Jr., in those early days was consistent with his present claims; but we will briefly notice the matter, as it chronologically follows the events just mentioned.

In the summer of 1869, Rufus F. Osgood, the patent solicitor, who was prosecuting the Race & Mathews application, advised Samuel R. C. Mathews to procure two or three affidavits from disinterested parties that to their knowledge Race & Mathews had manufactured and applied the hydrant with the loose outside jacket having end-play before Thomas R. Bailey's patent; and accordingly the affidavit of John F. Ward, superintendent of the Jersey City Water Works Company, and of Albert H. Goss, secretary and treasurer of the Auburn Water Works Company, were obtained, setting forth the fact that such hydrants were made and sold to their companies respectively, in March, April, and May, 1867. These affidavits were afterwards submitted to the examiner in charge of the case in the Patent Office, and he allowed the patent to issue.

Rufus F. Osgood, Q. 6–13, pp. 209–211 (*Tr. Rec.*).
John A. Wiedersheim, Q. 3–6, pp. 252, 253 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 51, pp. 273, 274 (*Tr. Rec.*).
Exhibit Mathews-Osgood Letter No. 2, p. 307 (*Tr. Rec.*).
Exhibit Osgood Letter of Aug. 26, 1869, pp. 307, 308 (*Tr. Rec.*).
Exhibit Osgood Letter of Aug. 31, 1869, p. 309 (*Tr. Rec.*).
Exhibit Goss Affidavit, p. 309 (*Tr. Rec.*).
Exhibit Ward Affidavit, pp. 309, 310 (*Tr. Rec.*).
Exhibit Osgood Letter of Oct. 21, 1869, p. 311 (*Tr. Rec.*).

Even if the Commissioner of Patents, through the examiner, still remained of the opinion that the model belonging to the original patent of Thomas R. Bailey, Jr., exhibited the same invention as was claimed by Race & Mathews (and of this there is no proof); he was justified in allowing the patent therefor to issue to Race & Mathews, after the evidence submitted that they had practised the invention before Bailey's application; and no interference could be properly declared under any rule of the Patent Office at that time or since; because Bailey's patent itself, No. 75,344, neither described nor showed, and much less claimed, any such invention.

Counsel for complainants in the Court below endeavored to divert attention from the material issues in this case, by asserting that one of the affidavits prepared for submission to the examiner had been suppressed. Such an assertion is not only wholly irrelevant but is also utterly untrue.

In the first place it is not at all certain that Samuel R. C. Mathews made an affidavit on that occasion. To be sure, he himself believes that he did and his solicitor thinks so likewise, although he says his recollection is not positive.

Samuel R. C. Mathews, C. Q. 175, 176, p. 294 (*Tr. Rec.*).
Rufus F. Osgood, Q. 21, p. 211 (*Tr. Rec.*).

But their testimony upon this point was based solely upon bare memory after the lapse of nearly fifteen years.

On the other hand the letter of this solicitor to Mr. Mathews dated August 26, 1869, explicitly calls for "two or three affidavits from *disinterested* parties," and certainly that did not include him who was the only *interested* party.

Exhibit Osgood Letter of Aug. 26, 1869, p. 308 (*Tr. Rec.*).
Rufus F. Osgood, Q. 6, p. 209 (*Tr. Rec.*).

Furthermore, if Samuel R. C. Mathews made such an affidavit he sent it to his patent solicitor Rufus F. Osgood, who forwarded it to his Washington correspondent John A. Wiedersheim. The latter found in his possession only two affidavits and produced them in evidence. If there was originally a third one, neither of these witnesses had seen it for nearly fifteen years; so that the charge of suppression or concealment is unqualifiedly absurd.

Samuel R. C. Mathews, C. Q. 175, 176, p. 294 (*Tr. Rec.*).
Rufus F. Osgood, Q. 8, p. 210 (*Tr. Rec.*).
John A. Wiedersheim, Q. 4, p. 252 (*Tr. Rec.*).

Finally, if Samuel R. C. Mathews had made such an affidavit, it would not have materially differed from his statements contained in his letter to the same solicitor dated August 27, 1869, wherein he set forth the leading facts in relation to the matter under consideration.

Exhibit Mathews-Osgood Letter No. 4, p. 308 (*Tr. Rec.*).

But all this is merely collateral to the issues in the present suit except as it tends to show the persistence of Race & Mathews in declaring and securing their exclusive right to the invention in controversy; and except, also, as it bears upon the conduct of Thomas R. Bailey, Jr., who admits that he knew that Race & Mathews had obtained a patent, which, in view of what had been previously communicated to him by Samuel R. C. Mathews, had the same legal effect in respect to his conduct, as it would have had if he had taken interest enough in it to ascertain what it was for. His testimony is this: —

"*C. Q.* 285. You knew that he got a patent for a hydrant with loose case having end play, did you not?

"*A.* Well, I knew it at some time or other. I knew he got a patent on a hydrant. I wouldn't say whether it was loose case or not. I never saw the claim. I never saw the claim until lately."

Thomas R. Bailey, dep., p. 92 (*Tr. Rec.*).

Was this the natural conduct of a man who believed himself to be the original inventor of such a structure, and who, after being informed that another inventor had made application for a patent for the same thing, did not take the trouble to examine that patent when he learned it had been granted?

Furthermore, it appears from the testimony of James Clapham that Thomas R. Bailey, Jr., was afraid of the claims of Race & Mathews as early as the fall of 1867, when he got his first hydrant set upon Transit Street, and that it was put into the ground there in great hurry, for fear that Race & Mathews might compel it to be taken out.

James Clapham, C. Q. 34–61, pp. 158–161 (*Tr. Rec.*).

They did succeed in keeping the knowledge of it from Samuel R. C. Mathews; but was such conduct indicative of any belief on the part of Thomas R. Bailey, Jr., that he had a right to a hydrant with loose case having end-play, as he now swears he did have?

Samuel R. C. Mathews, Q. 62, p. 276 (*Tr. Rec.*).
Thomas R. Bailey, C. Q. 289, 290, p. 93 (*Tr. Rec.*).

Summing up now the conduct of Thomas R. Bailey, Jr., in face of the extensive manufacture of hydrants, embracing the invention in controversy, by the Niagara Manufacturing Company, and Helen M. Lloyd and Samuel R. C. Mathews in the city of Lockport from the beginning of the year 1867 to the spring of 1870, and in face of the patent No. 96,959, granted to Race & Mathews, November 16, 1869, for the same invention, not to mention the continuance of such manufacture by Samuel R. C. Mathews and R. D. Wood & Co. from the spring of 1870 down to the present time, we find: —

First. That Thomas R. Bailey, Jr., although giving written instructions to Munn & Co. as to the subject-matter of his invention, and although reading the specification prepared by them before he signed and swore to it, did not describe nor claim in the specification nor represent in the drawings any structure embracing the invention here in controversy.

Second. That although he read this original patent No. 75,344, a few days after the date of its issue, March 10, 1868, he never by word or act indicated that his said patent did not describe, show and claim all that he intended to secure thereby, and all that he had invented, until procured to do so by the complainants nearly eight years afterwards for the purpose of obtaining for them the reissue in suit.

Third. That if he did not see the Race & Mathews hydrants embodying the invention in controversy, set in the fall of 1867 upon the Buffalo and Transit streets water-pipe extension, which he visited many times (James Clapham, C. Q. 96, 97, p. 164 *Tr. Rec.*); and if he did not see the Race & Mathews hydrants, also embodying the invention in controversy, set in the summer of 1869 upon the East avenue and Washburn street water-pipe extension, after his own hydrants had been rejected and left on the ground there, which he says he probably saw hundreds of times (C. Q. 496, p. 114 *Tr. Rec.*); and if he did not see the manufacture of such hydrants going on at the shop of the Niagara Manufacturing Company, which was within two or three hundred feet of his own shop, and which he visited frequently (*ut supra*, p. 39); he did know, as he himself admits, that such hydrants were being manufactured by Helen M. Lloyd (which must have been between August, 1868, and the summer of 1869), and that, at least, one hydrant of the same construction was set in the city of Lockport in 1869 or 1870; whereby he was sufficiently notified that others were publicly practising the invention which he

has since claimed in his reissue, but which he never, up to the time of his negotiations with the complainants, late in the year 1875, openly asserted to be his.

Fourth. That whether he was informed about the rejection of Race & Mathews' application of October 29, 1868, upon reference to his Patent Office model or not; he was requested by Samuel R. C. Mathews, in the winter of 1868–69, to make a disclaimer of the invention in controversy, and understood at the time, as he admits, that application had been made by Race & Mathews for a patent for such invention; and yet he did not then and there assert any claim to it, but simply refused to aid the applicants by disclaimer.

Fifth. That although he afterwards learned of the grant of the patent of November 16, 1869, to Samuel R. C. Mathews, and had every reason to believe that it had been granted upon the Race & Mathews application for the invention in controversy, about which he had been previously informed; he did not, according to his own testimony, take interest enough in it to ascertain what it was for, nor to assert any claim of invention adversely to it until procured to do so by the plaintiffs in 1876.

Sixth. That although before the grant of the Race & Mathews patent of November 16, 1869, he attempted the manufacture of hydrants having loose cases with a limited amount of end-play, and tried to get them put down for use in the city of Lockport, but had them rejected on account of adverse claims of Race & Mathews; and although he *now* testifies that he *then* knew he had a right to manufacture and sell such hydrants; yet he never protested to anybody that he had such right, nor asserted any claim to the invention in controversy; but, on the contrary, said at the time of this trouble that he could take that invention out of his structures by confining the cases with set-screws, which he did, in fact, insert for that very purpose.

Seventh. That after the issue of the Race & Mathews patent of November 16, 1869, he passively acquiesced in the adverse rights created thereby and asserted thereunder; and never manufactured another hydrant, but broke up those which he had previously made, and sold the same for old junk, with the exception of one which he set in front of his own shop for private use.

Eighth. That he never at any time, down to his negotiations with the complainants, late in the year 1875, openly asserted to any one that he was the inventor of what is now the subject-matter of the first claim of the reissue No. 6,990.

At the outset, then, and before any inquiry into the alleged priority of his invention of the structure in controversy, we are met with a long and persistent course of conduct which must negative any attempt at this distance of time to establish a claim for Thomas R. Bailey, Jr., to such invention.

As was said by the Supreme Court, in a case which presented many points of similarity to the case at bar, in the opinion delivered by Mr. JUSTICE BRADLEY:—

"His whole conduct for months, as well as his total silence on the subject of any prior invention made by himself, . . . is the strongest possible proof that no such invention as he claims had been projected by him. . . . Interested as he is in the result of the suit, his own testimony cannot be allowed to prevail against a course of conduct so utterly at variance with it. It may be true; but we cannot give it effect against what he himself did, and did not do, without disregarding the ordinary laws that govern human conduct."

Atlantic Works v. *Brady*, 107 U. S. 192, 203.

But in the present suit, the plaintiffs have utterly failed even to make out any credible proof that Thomas R. Bailey, Jr., conceived the invention in controversy, much less reduced it to practice before Washburn Race and Samuel R. C. Mathews.

Taking up the evidence in the chronological order of the events alleged to have happened, we find that Bailey's account of the inception of this invention is materially different in his first deposition from what he says of it in his second deposition, after being enlightened as to the state of the art created by the early manufacture of Race & Mathews.

In his testimony taken at the opening of complainants' evidence, he said he was familiar with the construction of the Race & Mathews hydrants put in with the Lockport Water Works in 1863, and with the lithograph chart or plate which the Race & Mathews people used for advertising their hydrants.

Thomas R. Bailey, C. Q. 213–219, p. 85 (*Tr. Rec.*).

But he really knew so little about the matter that he did not remember the construction of those hydrants at the bottom of the case; and he asserted that the case had no capacity for end-play, but was confined as shown in the drawing of the Race & Mathews patent of 1858.

Thomas R. Bailey, C. Q. 220–226, pp. 85, 86 (*Tr. Rec.*); C. Q. 231–235, pp. 86, 87 (*Tr. Rec.*); Q. 414, p. 105 (*Tr. Rec.*).

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Thomas R. Bailey, C. Q. 220–226, pp. 85, 86 (*Tr. Rec.*); C. Q. 231–235, pp. 86, 87 (*Tr. Rec.*); Q. 414, p. 105 (*Tr. Rec.*).

And he says that he first got the idea of making a hydrant with a loose case from seeing a Race & Mathews hydrant which had been broken by the frost, taken out on Pine Street in the city of Lockport in the spring of 1865, and which he likens to the drawing of Race & Mathews' patent of 1858.

Thomas R. Bailey, Q. 411–416, p. 105 (*Tr. Rec.*).

His account of his mental operation at the time is this: —

"It occurred to me that if I should put a loose case upon a hydrant and get rid of a shoulder or fulcrum for the earth to act upon when upheaving by the frost, the difficulty would be overcome."

Thomas R. Bailey, Q. 416, p. 105 (*Tr. Rec.*).

And his idea of the nature of his alleged invention is seen from his statement of the character of the defendants' infringement upon his reissue, for he says: —

"The infringement is this loose case having an end-play."

Thomas R. Bailey, Q. 46, p. 71 (*Tr. Rec.*).

On the other hand, after he had heard the overwhelming evidence on behalf of defendants that the old-style Race & Mathews hydrants all had loose cases with end-play from 1860 onwards, he defined his original idea to suit the new conditions; and he accordingly transferred the difficulty alleged to have been discovered by him in respect to the Pine Street hydrant referred to, from the case to the overhanging annular flange which surrounded it and against the under edge of which he now says the curbstone, heaved by the frost, would strike.

His final testimony on the subject is this: —

"I saw that the hydrant had an overlapping flange which the curbstone or the ground resting against it on the under side, when the ground became frozen and expanding by the action of the frost would strike this flange and either lift the hydrant out of its place or break it loose. The idea occurred to me that by putting the case on the outside of the hydrant stock there would be no shoulder for the earth or curbstone to strike against."

Thomas R. Bailey, Q. 3, pp. 375, 376 (*Tr. Rec.*).

He does not seem to see how barefaced a pretence this afterthought is, in view of the theory set forth in his reissue, and in view of the whole trend of complainants' opening evidence.

Passing this point which rests on his own unsupported testimony,

we come to a diary of 1865, which he produces, and on a blank page of which headed, "December, Sunday 3," appears a rude sketch, which is said to illustrate the invention in controversy.

Thomas R. Bailey, Q. 429–436, pp. 107, 108 (*Tr. Rec.*).
Exhibit Bailey's Diary Sketch, between pp. 56 and 57 (*Tr. Rec.*).

But this sketch, whatever it may have been intended to represent, derives no more authenticity from the diary in which it appears, than it would from any loose piece of paper on which it may have been made. The diary was not regularly and consecutively kept; there were twenty-four blank spaces allotted to as many days in that December, on which nothing was written or drawn, and the spaces allotted to the days of the preceding six months were no better filled; nor does Thomas R. Bailey pretend that the date over this sketch has any thing to do with the time when it was made; only he says it was in the year 1865; but how he knows this does not transpire.

Thomas R. Bailey, C. Q. 450–456, pp. 109, 110 (*Tr. Rec.*).

No one else identifies this diary sketch, and it adds nothing to the bare assertion of Bailey himself.

The same is likewise true of a sheet on which there appear certain drawings representing a hydrant, and the date in pencil, "March, 1866." It has been put in evidence as "Exhibit Bailey Partial Plan." When Thomas R. Bailey, Jr., was asked when it was made, he answered, "I think it was made in March, 1866" (C. Q. 179, p. 82 *Tr. Rec.*); but he does not have any definite recollection of the time, either of the drawing or of putting the date on it. His testimony amounts to this, and this only; that he thinks the drawing was made in March, 1866, because he finds it so dated; and he thinks the date was put on it in March, 1866, because such date appears written there. And he adds to this circular reasoning that he was in the habit of dating drawings, although no other drawing dated or undated is produced.

Thomas R. Bailey, C. Q. 174–194, pp. 81–83 (*Tr. Rec.*).
Exhibit Bailey Partial Plan, between pp. 56 and 57 (*Tr. Rec.*).

Manifestly, therefore, this plan drawing has no such authentication as entitles it to the slightest weight as a piece of evidence. It rests upon the testimony of Bailey alone, and is weak and uncertain at that.

We now come to the only thing upon which Thomas R. Bailey, Jr., bases his claim of priority of invention and in respect to which there is any other testimony besides his own. He has signally failed to prove what he alleges, but it is the only matter which calls for consideration here.

He testifies that in the fall of 1865 he made an experimental hydrant, about one half the size of an ordinary street hydrant, and that he constructed it very similar to Exhibit Bailey's Original Model, except that it had no bead upon the body of the hydrant proper. He mounted this half-size hydrant upon the penstock or trunk for the water wheel in the basement of the building occupied by Trevor & Co., adjoining the building where his own shop was, and connected it to the water trunk.

He further testifies that this experimental half-size hydrant was provided with a loose case.

Thomas R. Bailey, Q. 418–427, pp. 105–107 (*Tr. Rec.*).

He admits that it was not set in the ground, but says that it set upon the floor or some timber; and he also admits that the only use made of it was for sprinkling about the yard and washing castings.

Thomas R. Bailey, C. Q. 439–446, pp. 108, 109 (*Tr. Rec.*).

Now, aside from the intrinsic improbability of his making a casing for an experimental half-size hydrant, which was not to be used in the ground, but only to be tried in respect to its valves, simple economy would have prevented him from going to the useless expense of a casting which could not possibly be put to any use or test; and he says that before he made the experimental contrivance his brother told him he had better not fool away any money on it.

Thomas R. Bailey, Q. 409, 410, p. 104 (*Tr. Rec.*).

There are but two questions of any importance in respect to this half-size hydrant: *first*, When was it made? and *second*, Did it have a case?

As to the date, Thomas R. Bailey, Jr., does not produce or refer to anything which corroborates his statement that it was in the fall of 1865 or early winter. None of the events which he mentions as enabling him to fix upon this date are shown to have any certainty of date for themselves. As to the case, other testimony, to be presently considered, shows that this half-size hydrant did not have any.

The next witness called by the complainants was James E. Ferguson, brother-in-law of Thomas R. Bailey, Jr. He testifies that he saw the experimental hydrant in the basement of Trevor Bros.' building, connected to the trunk of the water wheel, in the winter of 1865, and that it had a loose case. This date, he says, he fixes because that was the first year he worked at the machinist's business.

James E. Ferguson, Q. 14–18, pp. 116, 117 (*Tr. Rec.*).

But it appears from his cross examination that he worked in the same shop for the Baileys, father and sons, from May, 1865, to the fall of 1870 or 1871 continuously, with the exception of sometimes in the fall, when he would be let off for five or six weeks to work at coopering; and he does not attempt to connect the half-size hydrant with any event which can be fixed during this employment of five or six consecutive years.

James E. Ferguson, C. Q. 27–32, pp. 117, 118 (*Tr. Rec.*).

He never did any work upon hydrants or models of hydrants; he relies upon his bare and unaided memory in fixing the dates of events testified about; and he had talked the matter over with Thomas R. Bailey, Jr., before testifying, and heard the greater part of his testimony.

James E. Ferguson, C. Q. 33–44, pp. 118, 119 (*Tr. Rec.*).

Is this such testimony as will determine the judgment of a court of equity to overthrow vested interests of sixteen or seventeen years' standing?

The next witness called is George Bailey, brother of Thomas R. Bailey, Jr., and his former partner.

He is shown the Exhibit Bailey's Original Model, and asked whether he saw a hydrant of the construction like that model set up and in operation; and he answers that he saw one not quite one half the size of an actual hydrant, in Trevor's building, attached to the trunk that brought water to the wheel; but he does not mention any case upon this half-size hydrant. As to the time, he says, "It was somewhere in the neighborhood of 1865. I can't fix the date exactly." And when asked why he says it was in 1865, he replies: "Because it is the year that my brother and I went together. I used to talk to him once in a while about fooling with it — fooling away money."

George Bailey, Q. 8, 9, p. 150 (*Tr. Rec.*).

But he does not tell what reason he has for thinking it was the first year of his partnership with his brother, and not some other of the six or seven years during which he continued a partner. His talk about fooling away money could have happened in one year as well as another.

The defect in this kind of date fixing is that the thing referred to is as indefinite as the thing to be fixed by it.

But the cross-examination of George Bailey discloses a fact which is fatal to the date which he attempts to assign for the making of the half-size hydrant.

He testifies that he thinks the Exhibit Bailey's Original Model was made before the half-size hydrant, and that there was from six to nine months between them.

George Bailey, C. Q. 11–14, pp. 150, 151 (*Tr. Rec.*).

Now, Thomas R. Bailey, Jr., himself, testifies that Exhibit Bailey's Original Model was not made until the winter of 1866–67, or the spring of 1867 (Q. 12, p. 67 *Tr. Rec.*); and, therefore, George Bailey's testimony as to the relative order of time of the construction of this model and the half-size hydrant, — about which he was much less liable to be mistaken than about a mere matter of date, — puts the latter into at least the summer of 1867; so that Thomas R. Bailey's testimony upon this point is not corroborated but destroyed by the testimony of his brother.

The next witness, James Clapham, is asked whether he remembers seeing a small-sized hydrant like the one afterwards put in evidence as Exhibit Bailey Hydrant; and he answers, that he saw one in the basement of the Trevor building "about the same time I had that contract"; that is to say, the contract with the city of Lockport to put down the Buffalo and Transit streets water-pipe extension, which was in the fall of 1867; and he testifies that he was solicited to look at it by Mr. Bailey.

James Clapham, Q. 17, 18, p. 157 (*Tr. Rec.*); C. Q. 29–33, p. 158 (*Tr. Rec.*).

This witness makes no specific mention of any case to this small sized hydrant, and it would have been wholly useless there; but the cylinder valve was an important operating feature to be tested, and it was natural that Thomas R. Bailey should have solicited James Clapham to see that valve work, considering the fact that T. R.

Bailey's Sons sought and, on November 11, 1867, obtained permission from the city to put down a hydrant on the Buffalo and Transit streets water-pipe extension, for which James Clapham had the contract.

Charles H. Squires, Q. 4, pp. 154, 155 (*Tr. Rec.*).

And this argument is not affected by the fact that James Clapham happened to go there Sunday, when there was no water with which to operate the valve.

James Clapham, C. Q. 29, 30, p. 158 (*Tr. Rec.*).

But the testimony of Thomas R. Bailey, Jr., as to the length of time during which the half-size hydrant remained in the basement of the Trevor building, coupled with this testimony of James Clapham, that he saw it in the fall of 1867, utterly precludes its having been there in the fall of 1865.

Bailey's testimony is as follows: —

"*Q.* 419. Where was this experimental hydrant set up?
"*A.* It was in the basement of the building adjoining the one occupied by myself and brother, and owned by Trevor & Co., situated between Market street and the canal, Lockport, N.Y.
Q. 420. *How long did that remain there?*
"*A.* *Well, I should say about a year, perhaps more.*"

Thomas R. Bailey, dep. p. 106 (*Tr. Rec.*).

Any testimony, therefore, that it was seen in the basement of the Trevor building in 1867 destroys what little effect, if any, the bare assertion that it was put there in 1865 may have.

The last witness called by the plaintiffs upon this matter was Edwin Saxton, and his testimony upon cross-examination utterly overthrows the uncorroborated allegations of Thomas R. Bailey, Jr., and his brother-in-law, James E. Ferguson, that this half-size hydrant was made in 1865; and contradicts them as to its having had a case.

This witness came home from the army in July, 1865. During the fall of that year he attended a commercial college in Buffalo from which he graduated in December, and has his diploma to show for it, dated December 7, 1865. After that he did no business until March, 1866. Then he went to work for T. R. Bailey's Sons for about two weeks to straighten up their books. At or near April 1, 1866, he went to work for them both as bookkeeper and as a hand in the shop at spare times.

It took him from three to six months to get so that he could run a lathe; and it was not until some time afterwards that this small-size hydrant was made, *for he worked on it.*

Edwin Saxton, 1-7, Q. pp. 179, 180 (*Tr. Rec.*); C. Q. 8-24, pp. 180, 181 (*Tr. Rec.*).

This testimony is as follows: —

"*C. Q.* 13. *When was this hydrant made, as well as you recollect?*
"*A. I think it was made either in* 1866 *or the spring of* 1867.
"*C. Q.* 14. How do you arrive at that date for the making of it?
"*A.* By the fact that when I first went to work for Bailey I knew nothing about machinery; *after a time, in from three to six months, I got a little insight into the business, and I was put on lathe work; and it was some time after I was put on lathe work that this hydrant was made.* That is correct to the best of my recollection.
"*C. Q.* 15. Did you work on this hydrant?
"*A.* I think I did.
"*C. Q.* 16. *What work did you do upon it?*
"*A. Some portion of the lathe work, I can't tell just what part, — but my recollection is I did some part of the lathe work.*"

. . . . . .

"*C. Q.* 24. State as definitely as you can, when you first worked on this two-and-one-half-foot hydrant, and when you first saw it set on the water trunk in the Trevor building.
"*A. To the best of my recollection it must have been in the fall of* 1866 *that I first worked on that hydrant; and it was either in the fall of* 1866 *or spring of* 1867 *that it was set up.*"

Edwin Saxton, dep., pp. 180, 181 (*Tr. Rec.*).

This testimony is fortified by collateral events about which the witness cannot be mistaken. The half-size hydrant could not have been made until after he did lathe work on it while it was making.

For that reason it could not have been made in the fall of 1865, because he was then at a commercial college in Buffalo. For the same reason it could not have been made in the winter of 1865–66, because he did not begin to work in the shop of T. R. Bailey's Sons until the spring of 1866. For the like reason it could not have been made during the summer of 1866, because he did not acquire skill enough to do lathe work until from three to six months after he began to learn about machinery.

Hence, it is certain that this half-size hydrant could not have been made before the fall of 1866, and probably not so early as that, because Edwin Saxton testifies, "it was some time after I was put on

lathe work that this hydrant was made" (14 C. Q. p. 235); but, at any rate, *it could not have been made until after Washburn Race and Samuel R. C. Mathews had constructed a full-size hydrant of the new style, like Exhibit Rice & Mathews Hydrant, from the patterns for that purpose made by Jared M. Gleason, between May 24 and June 20, 1866* (*ut supra*, p. 53).

Moreover, this witness testifies that his impression is that this half-size hydrant did not have any case upon it. To be sure, he does not say positively that it had not; but, as far as his recollection goes, it is against the pretensions of Thomas R. Bailey, Jr.

Edwin Saxton, C. Q. 12, p. 180 (*Tr. Rec.*).

He does, however, testify that the purpose of making this small hydrant was, as he understood it, to try the valve, which was new.

Edwin Saxton, C. Q. 38, 39, p. 182 (*Tr. Rec.*).

One other witness has testified upon this subject, on behalf of defendants, and he is William W. Trevor, who carried on business in the Trevor building during the time that T. R. Bailey's Sons occupied the wooden building adjoining, from 1865 to 1871. He saw the small hydrant referred to while it was connected with the water pipe in the basement of his building; and, although he cannot fix the time any nearer than between the two dates 1865 and 1871, he testifies that, to the best of his recollection, it did not have any case on it or around it.

William W. Trevor, Q. 22–25, pp. 202, 203 (*Tr. Rec.*).

And he further testifies that while he never knew Thomas R. Bailey, Jr., to claim to be the inventor of anything pertaining to the frost case of a hydrant, the said Bailey did claim to be the inventor of the cylinder-valve in his hydrant; and that the working of such a valve was tested in the small hydrant in the cellar of the Trevor building on the water pipe leading to the water wheel.

William W. Trevor, Q. 19–23, pp. 202, 203 (*Tr. Rec.*).

The entire evidence in relation to this half-size hydrant may be summed up as follows: —

Two witnesses, Thomas R. Bailey, Jr., and his brother-in-law, James E. Ferguson, testify, upon mere stretch of memory, that it was made in the fall of 1865.

The third witness, George Bailey, brother of Thomas R. Bailey, Jr., when testifying upon his recollection at large, says it was in 1865; but, when referring to order of construction, testifies that it was made from six to nine months after the model Exhibit Bailey's Original Model, which Thomas R. Bailey, Jr., does not pretend was made earlier than January, 1867.

The fourth witness, James Clapham, testifies that he saw it mounted on the water trunk in the basement of the Trevor building about the time of his contract with the city of Lockport, in the fall of 1867; and as Thomas R. Bailey, Jr., testifies it was set up there only about a year, this testimony of James Clapham, while agreeing with what George Bailey remembers when taking Exhibit Bailey's Original Model as a point of reference, and thus bringing the making of the half-size hydrant into the year 1867, disagrees with any attempt to put the date back to 1865.

The fifth witness, Edwin Saxton, by reason of the fact that he worked upon this half-size hydrant when it was making, coupled with the fact that he could not have done so before the fall of 1866, absolutely contradicts the unsupported assertions of Thomas R. Bailey, Jr., and his brother-in-law, James E. Ferguson; while the further remembrance of this witness that the half-size hydrant was not set up on the water trunk in the basement of the Trevor building until the spring of 1867, is in harmony with the result of George Bailey's testimony and with the testimony of James Clapham.

This fifth witness, Edwin Saxton, and a sixth witness, William W. Trevor, both agree that the half-size hydrant did not have any case upon it, but that it was made to try the cylinder valve, which Thomas R. Bailey, Jr., then claimed as his invention, and which forms the chief element of the combinations described and specified in his original patent No. 75,344.

This is the whole of the complainants' case upon the question of priority of invention. There has not been introduced a particle of evidence to controvert the abundant proofs adduced by defendants, that Washburn Race and Samuel R. C. Mathews fully described and represented the invention in controversy upon Exhibit Niagara Manufacturing Company Lithograph, as early as April 4, 1866; that they caused patterns to be made for full-size hydrants embodying the same invention between May 24 and June 20, 1866; that they made a sample hydrant from these patterns within two or three weeks of

that time, or in other words, as early as July, 1866; that they made a few more during the fall of 1866; that they solicited orders for the sale of such hydrants in December, 1866, and January, 1867; that they sent off the first sample hydrant of this construction, Dec. 28, 1866; that they sold and shipped just such a hydrant to Jersey City, Feb. 11, 1867, and continued to manufacture and sell hydrants embodying the invention in controversy, from that time throughout the year 1867, and thereafter; and that they thus made this invention in the spring of 1866, reduced it to practice in the summer of 1866, and gave the commercial public full benefit of it at the beginning of the year 1867.

But, notwithstanding these facts, and the further facts that the same manufacture has ever since been carried on by Race & Mathews, their associates and assigns, and that the exclusive right to the same invention has been claimed by them under patent No. 96,959, granted November 16, 1869, — notwithstanding all this, after the continuance of from seventeen to eighteen years' possession and exercise of the invention in controversy by Race & Mathews, their associates and assigns, the complainants at this late day appear in a court of equity and ask it to overthrow all these interests so long established and undisturbed, and to decree that Race & Mathews were not the original and first inventors of the structure in suit, upon the bare word of Thomas R. Bailey, Jr., that he made a rude sketch and a partial drawing before April, 1866, and upon the mere assertion of Thomas R. Bailey, Jr., and his brother-in-law, that he made an experimental half-size hydrant with a case upon it, and set it up to try its valve in the fall of 1865, when such testimony is contradicted by four other witnesses.

Even without such contradiction, the Court would not, under the circumstances, give credit to this testimony of Thomas R. Bailey, Jr., and his brother-in-law; for, as was said in an opinion of the Supreme Court, delivered by Mr. JUSTICE STRONG:—

"There is nothing in regard to which a witness is more likely to be mistaken than in fixing the date at which a transaction long past took place."

Willet v. *Fisher*, 18 Wallace, 91, 97.

And to the same effect is the following observation by Mr. JUSTICE CLIFFORD: —

"Dates are with difficulty retained by a good memory, even when the inquiry has respect to recent events."

Wing v. *Richardson*, 2 Clifford, 449, 453.

See also, —

Hawes v. *Antisdel*, 2 Bann. & Ard. 10, 22.
Sinclair v. *Backus*, 5 Bann. & Ard. 81, 83, 84.

A word should here be said about the conduct of Thomas R. Bailey, Jr., and the knowledge which he possessed as to the date of Race & Mathews' invention before he testified.

In the forepart of the year 1876, shortly after he had sold his reissue to the plaintiffs, he wrote two letters to Jared M. Gleason, the former pattern maker of the Niagara Manufacturing Company, making inquiry as to the date when the patterns of the Race & Mathews hydrant were altered over, referring to the change by which the invention here in controversy was embodied in them, and he received a letter in reply dated April 28, 1876, to the effect that Gleason altered those patterns before he left Race, Mathews & Co. in 1866.

Jared M. Gleason, Q. 45–50, pp. 229, 230 (*Tr. Rec.*); C. Q. 58, p. 230 (*Tr. Rec.*).
Exhibit Gleason-Bailey Letter, p. 313 (*Tr. Rec.*).

But Thomas R. Bailey persistently denied all remembrance either of writing or receiving any letter on this subject; and even denied all remembrance that Jared M. Gleason was pattern maker for the Niagara Manufacturing Company.

Thomas R. Bailey, C. Q. 252–264, pp. 89, 90 (*Tr. Rec.*); C. Q. 373–378, pp. 100, 101 (*Tr. Rec.*); Q. 479, p. 112 (*Tr. Rec.*); C. Q. 491–493, p. 114 (*Tr. Rec.*).

In other words, if we may believe him, he had lost all memory of what was entirely familiar to him in April, 1876; and yet he would have the Court trust his memory of what he says occurred eight or nine years before that, relating to kindred subject-matter.

But he must have known from that correspondence with Jared M. Gleason, in 1876, that before he could establish any claim to priority of invention over Race & Mathews, he must carry the date of his

own inception of it back of the altering of the hydrant patterns of the Niagara Manufacturing Company, in 1866; and if he did not retain that knowledge so acquired until his testimony in this case, he had another source at hand from which to learn the full history of the invention by Race & Mathews. It was contained in the depositions of Samuel R. C. Mathews, Jared M. Gleason and others, in the printed record of the case of *Mathews* v. *Boston Machine Co.*, taken in 1876, and was accessible to the complainants for many years.

Exhibit Record, Mathews *v.* Boston Machine Co., pp. 528–534 (*Tr. Rec.*); pp. 561–573 (*Tr. Rec.*).

And the evidence shows that the complainants were fully alive to the issue of that suit.

James Flower, C. Q. 63, p. 126 (*Tr. Rec.*).
Exhibit Stetson Letter, p. 64 (*Tr. Rec.*).
Charles Carr, Q. 22, p. 342 (*Tr. Rec.*).
Exhibit Flower-Carr Correspondence, pp. 369–371 (*Tr. Rec.*).

Indeed they were explicitly informed by the superintendent of the Boston Machine Company by his letter to them of June 19, 1876, the very day on which the evidence in the suit of *Mathews* v. *Boston Machine Co.* was closed (*see* p. 585 *Tr. Rec.*), that "Bailey's patent antedates Mathews', *but he would have to prove priority of invention and would have to go as far back as June or July of* 1866 *to sustain it.*"

Exhibit Flower-Carr Correspondence, No. 3, p. 370 (*Tr. Rec.*).

It is certain, then, that when the complainants entered upon this litigation they knew that Thomas R. Bailey, Jr., must furnish some testimony tending to show that his invention of the structure in controversy was earlier than June or July, 1866; and they could not have failed to let him know how the matter stood; so that he must be charged at the outset with the bias consequent upon such knowledge.

Finally, even if it were conceded, for the sake of argument, that Thomas R. Bailey's story is true, as to what he did prior to the date of Race & Mathews' origination of the invention in controversy, he has not come within the requisitions of law for establishing a claim to priority.

By his own testimony it appears that he did not begin to reduce the invention to practice by the construction of a practically opera-

tive hydrant, so far as its combination with a sliding case is concerned, until the summer of 1867, and did not get such a hydrant completed until the last of August or the first of September, 1867.

His testimony is this: —

"*C. Q.* 74. *When did you make the first hydrant which was intended for practical use?*

"*A.* Some time during the summer of 1867."

. . . . . .

"*C. Q.* 82. How long was it before you received the castings for the first hydrant, and when was the hydrant itself first put together in working order?

"*A.* I can't tell anything about the receipt of the castings. *The hydrant was finished some time in August; the very last of August or the first of September*, 1867."

Thomas R. Bailey, dep., p. 74 (*Tr. Rec.*).

Now this was upwards of one year after Race & Mathews had embodied the invention in controversy in a full-size working hydrant, and more than six months after they had begun selling such hydrants in the open market.

Richard H. Button, Q. 21, p. 205 (*Tr. Rec.*).
Jared M. Gleason, Q. 32, 33, p. 228 (*Tr. Rec.*).
John F. Ward, Q. 3-8, pp. 259, 260 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 29, p. 268 (*Tr. Rec.*); Q. 38, 39, pp. 269, 270 (*Tr. Rec.*).

And if it were true that the half-size hydrant was constructed in the fall of 1865, and had a case on it, nothing was ever done to put such case to use or to make a practical test of it; and indeed the whole structure was so small that it could not have a frost case which would be capable of experimental trial for any practical purpose.

Whatever may have been the character of this small hydrant for testing the efficiency of the cylinder valve, it was a mere model so far as concerned any case which might be put upon it, and was so treated. It was simply used to try the valve, was discontinued even for that purpose in about a year, was never set in the ground, and was finally broken up and sent to the melting pot.

Thomas R. Bailey, Q. 419-421, p. 106 (*Tr. Rec.*); C. Q. 439-446, pp. 108, 109 (*Tr. Rec.*).

In fact, if it ever had a sliding case on it, the combination never reached an experimental stage in that structure.

Furthermore, there is no evidence of diligence in perfecting this invention, if Thomas R. Bailey, Jr., made it in 1865. He does not explain why he waited from that time to the latter part of August or first of September, 1867, a period of nearly two years, before reducing the invention to practice. He did nothing meantime according to his own testimony, except to make a couple of models, one of which, he says, is Exhibit Bailey's Original Model, and which he further says were made during the winter of 1866–67 or spring of 1867; when, as the evidence overwhelmingly shows, the Niagara Manufacturing Company, under the management of Race & Mathews, was making and selling hydrants embodying his invention, and causing them to be put into public use.

Thomas R. Bailey, Q. 12, 13, p. 67 (*Tr. Rec.*); C. Q. 163–167, p. 81 (*Tr. Rec.*).

There is intrinsic evidence that Exhibit Bailey's Original Model was not made until after September 16, 1867, the date of his original application; for it has a plate upon it which Thomas R. Bailey, Jr., testifies was put on at the time the model was made, and which bears the inscription, "T. R. Bailey, Jr., Lockport, N.Y., Pat. Apl'd For."

Thomas R. Bailey, Q. 17, 18, p. 67 (*Tr. Rec.*); C. Q. 207, p. 84 (*Tr. Rec.*).

But he admits that he has no memoranda or book entries made at the time relating to the making of either of these models or the first hydrant.

Thomas R. Bailey, C. Q. 146–148, pp. 79, 80 (*Tr. Rec.*).

So that the statement upon this plate that when the model was made the patent had been applied for is stronger evidence than Thomas R. Bailey's unaided memory after the lapse of something like seventeen years.

Even Exhibit Bailey's Original Model does not substantially represent the invention in controversy when it is put together properly without undue expansion of joints by the duplication and thickening of leather washers; and, so far as the Patent Office model is concerned, there is no sufficient evidence that it ever substantially represented this invention. But, if it were otherwise, the making of such a structure as Thomas R. Bailey, Jr., testifies his half-size hydrant was in the fall of 1865, and its abandonment in the course of a year, with the delay of almost another year before reducing the

invention in controversy to practice by making a hydrant with a practically operative casing, was not such exercise of diligence as the law permits to take away the rights of Race & Mathews, who reduced the invention to practice in the summer of 1866, a year before Thomas R. Bailey, Jr., did, and who gave the benefit of the invention to the public about the time when he, according to his own testimony, abandoned his experiments with the half-size hydrant upon which he never did and never could test a frost case.

The reissue in suit can have no weight in determining the question of priority of invention. The original patent, No. 75,344, was *prima facie* evidence only that the things therein described, shown and claimed were invented by the patentee at the date of his application therefor, September 16, 1867.

The plaintiffs are not aided by either of these patents in carrying the date of Thomas R. Bailey, Jr.'s, alleged origination of the invention in controversy back of the established manufacture, by the Niagara Manufacturing Company under the direction of Race & Mathews early in the year 1867, of hydrants embodying this invention.

Even if the original patent, No. 75,344, had described, shown and claimed all that the reissue, No. 6,990, now does, the overwhelming and uncontroverted proof that Race & Mathews had put the public in full possession of the invention, by the manufacture and sale of working hydrants embodying it, months before the date of Thomas R. Bailey, Jr.'s, original application, would have shifted the burden of proof of priority of invention upon the plaintiffs.

Thus Mr. JUSTICE CLIFFORD has said in a judicial opinion: —

"Letters-patent are granted by the government under authority of law, and when regularly issued, and in the usual form, they are, if introduced in the case, *prima facie* evidence that the person named as such was the original and first inventor of what he has described therein as his improvement. Such presumption, however, in the absence of the application for the patent, extends back only to the date of the letters-patent, and in no case does it extend further back than to the time of the filing of the original application. Whenever a party desires to show that his invention was made prior to the date of his application for the patent, he must prove the fact by other sufficient evidence, because no such presumption arises from the letters-patent or the application, or both combined."

Wing v. *Richardson*, 2 Clifford, 449, 450.

See also,—

Dane v. *Chicago Manufacturing Co.* 6 Fisher's Pat. Cas. 130, 133.

Howard v. *Christy*, 2 Bann. & Ard. 457, 458.

Not only so, but the application, in order to be of any avail in carrying the date of the patented invention back of the date of the patent itself, must fully disclose that invention; otherwise it is of no effect, and cannot support the patent subsequently granted upon radical amendments.

Railway Co. v. *Sayles*, 97 U. S. 554, 563, 564.

JUDGE WHEELER, commenting upon this point, says:—

"And the application, when produced, in order to be effective evidence to carry the date of the invention back to its own date, must be an application for substantially the same invention for which the patent is granted, without material variation or addition (*Railway Co.* v. *Sayles*, 97 U. S. 554). The date of the application alone would not be sufficient for that purpose."

. . . . . .

"When the application fails to take the date of the invention back of the date of the patent, and the defendants make out prior knowledge and use by others, beyond any fair or reasonable doubt, as the law requires, the burden is shifted on to the plaintiff, to show invention or discovery by the patentee still prior to that."

Eagleton Manuf'g Co. v. *West, Bradley & Cary Mfg. Co.*, 18 Blatchf. 218, 220, 222.

The first application which described the invention here in controversy was that filed in the Patent Office by Washburn Race and Samuel R. C. Mathews, October 29, 1868; and the first patent which disclosed it to the public was No. 96,959, granted to Race & Mathews, November 16, 1869, upon the same application. The prior patent No. 75,344 to Thomas R. Bailey, Jr., and his application therefor, did not describe, show, suggest or indicate this invention at all; and therefore so far as such invention is concerned the Bailey reissue No. 6,990 is in the same legal predicament with respect to the prior patent of Race & Mathews as if the said reissue were an original patent of the late date which such reissue bears.

Nor is this question affected by the decision of the Supreme Court invalidating the claim of the Race & Mathews 1869 patent, for want of novelty. The fact that the invention in controversy was described and shown in said Race & Mathews patent prior to its appearance in any patent to Thomas R. Bailey, Jr., is sufficient at the outset to throw upon the complainants the burden of proof in the attempt to establish priority of invention.

Such burden they cannot sustain without preponderance of evidence in favor of their allegation that Thomas R. Bailey, Jr., was the original and first inventor.

In this they have signally failed.

First. Because Thomas R. Bailey, Jr., rested satisfied with the specification of his original application prepared under his instructions, and with the patent granted thereon; although he read them and knew that they did not describe or claim the invention in controversy.

Second. Because he stood by in silence, without asserting any claim to the invention, although he knew that hydrants embodying it were being manufactured and used by others; and had good reason to believe that Race & Mathews had made application for a patent to secure it.

Third. Because he submitted to have his own manufacture of hydrants suppressed by Race & Mathews; and after the issue of their patent for this invention, ceased to manufacture more, and broke up what he had made.

Fourth. Because his claim of priority of invention is based upon the bare testimony of himself and his brother-in-law as to a date, and is completely disproved by four other witnesses, three of whom were called by the complainants.

Fifth. Because his memory is shown to be unreliable by its failure to retain much more recent events which appertain to the same subject, and which he might have been expected to remember.

Sixth. Because he testifies with the bias derived from knowledge acquired before his testimony was given, that the complainants' case would fail, unless he succeeded in proving the date of his alleged inception of the invention back of the dates of the Race & Mathews invention on record in the old suit of *Mathews* v. *Boston Machine Co.*

Seventh. Because his own account of what he did prior to the time when Race & Mathews reduced the invention to practice and

put it into public use, even if the disproof of his testimony be entirely disregarded, was not sufficient in law to constitute him the prior inventor.

It is confidently submitted, therefore, that the complainants have not succeeded even in casting a cloud upon the title of Race & Mathews and their assigns to this invention in controversy, nor in raising the slightest doubt that Race & Mathews anticipated Thomas R. Bailey, Jr., both in originating the invention and in reducing it to practice.

IV. First claim of reissue No. 6,990 identical with one already adjudged by this Court to be void for want of novelty.

The complainants have admitted, by the testimony of Mr. James Flower (C. Q. 122, pp. 136, 137 *Tr. Rec.*), that they procured the reissue in suit to protect themselves against Mr. Samuel R. C. Mathews, the grantee of the Race & Mathews patent of November 16, 1869; and it was obviously their intention to insert in that reissue a claim which would cover precisely the same invention as that for which such Race & Mathews patent was granted.

See also Exhibit Pendry Letter No. 1, p. 65 (*Tr. Rec.*).
Exhibit Pendry Letter No. 2, pp. 65, 66 (*Tr. Rec.*).

The specification of the Race & Mathews patent No. 96,959, dated November 16, 1869, is as follows, and a Patent Office copy of the drawings belonging thereto is here inserted: —

SPECIFICATION OF PATENT NO. 96,959, DATED NOVEMBER 16, 1869.

To all whom it may concern:

Be it known that we, WASHBURN RACE and S. R. C. MATHEWS, of Lockport, in the county of Niagara and State of New York, have invented a certain new and useful Improvement in Hydrants; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a sectional elevation of our improved hydrant; Fig. 2, a horizontal cross-section.

Like letters of reference indicate corresponding parts in both figures.

We obtained a patent dated January 28, [26] 1858, in which the distinguishing feature is a detached case or jacket surrounding the hydrant-stock, and embedded in the ground.

Our present invention is an improvement upon that; and consists in so

forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings, **A** indicates the hydrant, the part **a** resting above ground, and the stock **b** being embedded.

The loose case or jacket **B,** which surrounds the stock, is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders **g g,** which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply inclosed. The lower end of the case preferably shuts into a flange, **h,** of the main elbow-connection **C,** and it may be centered to prevent axial turning by a sleeve, **c,** which rests in a groove, **d.**

In the use of this hydrant, the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

By this arrangement the heaving action is expended entirely upon the outside case, and can in no wise affect the hydrant. The heaving by frost is a constant source of trouble and expense in other hydrants, by causing the elbows at the bottom connecting with the "main" to break, also throwing the hydrant itself out of position. While we remedy this difficulty by giving the desired end play, we at the same time, by extending the case above the surface, enable it to be driven back to place without difficulty.

Another great advantage of our invention is that the hydrant can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention, and desire to secure by Letters Patent, is —

The detached case **B,** so combined and arranged with hydrant **A** as to have an end-play or vertical motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place, without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Exhibit Race & Mathews 1869, patent pp. 324-327 (*Tr. Rec.*).
See also pp. 63, 64 (*Tr. Rec.*).

H. Race & S. R. C. Matthews.
Hydrants.

No. 96959. Patented Nov. 16. 1869.

Fig. 1.

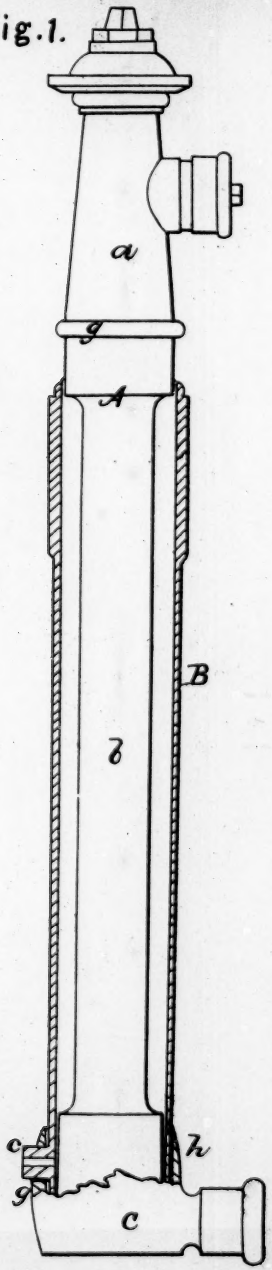

Fig. 2.

Witnesses:

J. R. Dale
[illegible]

Inventors:

Washburn Ra[illegible]
S. R. C. Mathews
By J. Fraser &c
Attys

forming and connecting the loose case that it extends above the surface of the ground, and conforms to the general outline of the hydrant itself, and may be driven back to place when the frost has expended its force, as hereinafter set forth.

In the drawings, **A** indicates the hydrant, the part **a** resting above ground, and the stock **b** being embedded.

The loose case or jacket **B**, which surrounds the stock, is made of graceful cylindrical outline, so as to conform to the general symmetry of the hydrant, and it has an end play of several inches, more or less, between shoulders **g g**, which limit the motion. The earth is filled around this jacket, while the hydrant-stock itself is simply inclosed. The lower end of the case preferably shuts into a flange, **h**, of the main elbow-connection **C**, and it may be centered to prevent axial turning by a sleeve, **c**, which rests in a groove, **d**.

In the use of this hydrant, the earth is not filled clear to the top of the loose case, but the latter projects up to such an extent that it may be driven back to place when the frost has expended its force. The position of the parts, of course, will be indicated at the top to the eye.

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Another great advantage of our invention is that the hydrant can be set at various heights above sidewalks, accommodating them to the different gradings without losing their symmetrical appearance. This is owing to the fact that the loose case projecting above presents the same graceful appearance as the hydrant itself.

What we claim as our invention, and desire to secure by Letters Patent, is —

The detached case **B**, so combined and arranged with hydrant **A** as to have an end-play or vertical motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place, without disturbing the hydrant.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WASHBURN RACE.
S. R. C. MATHEWS.

Exhibit Race & Mathews 1869, patent pp. 324–327 (*Tr. Rec.*).
See also pp. 63, 64 (*Tr. Rec.*).

W. Race & S. R. C. Matthews.

Hydrants.

No. 90959. Patented Nov. 16. 1869.

Fig. 1.

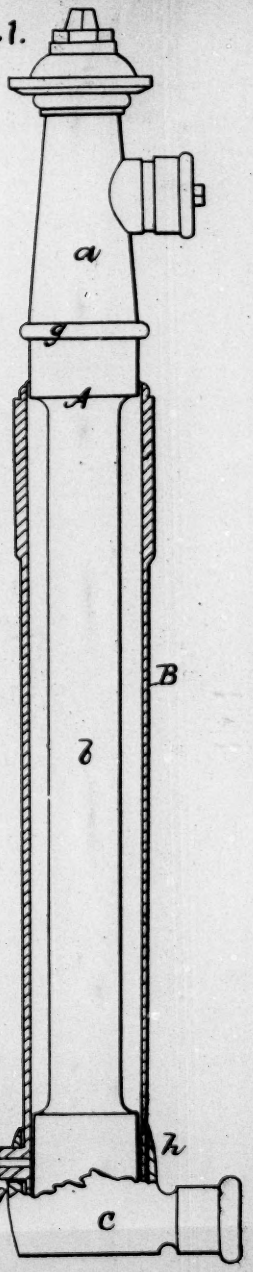

Fig. 2.

Witnesses:

H. C. Wall.

Inventors:

Washburn Ra
S. R. C. Mathew
By J. Fraser

The first claim of the reissue, No. 6,990, dated March 14, 1876, here in suit is in these words: —

"What I claim is —

"1. In combination with a hydrant or fire plug, a detached and surrounding casing C, said casing adapted to have an independent up-and-down motion sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper, substantially as shown."

Exhibit Bailey's Reissue, p. 54 (*Tr. Rec.*).

And the substantial identity of this claim with the single claim of the Race & Mathews patent of 1869 will appear at a glance by putting their corresponding phrases side by side in parallel columns, the order of the one being slightly transposed for this purpose:

RACE & MATHEWS PATENT, No. 96,959, NOVEMBER 16, 1869.	BAILEY REISSUE, No. 6,990, MARCH 14, 1876.
The *detached case* B,	a *detached* and surrounding *casing* C,
so *combined* and arranged *with hydrant* A	In *combination with* a *hydrant* or fire plug,
as to have an end play or *vertical motion*	said casing adapted to have an independent *up-and-down motion*
of several inches *to compensate for* the *heaving by frost*,	*sufficient to receive* the entire movement imparted by the *upheaval* of the surrounding earth *by freezing*,
the upper part of same passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place,	substantially as shown,
without disturbing the hydrant.	*without* derangement or *disturbance of the hydrant* or plug proper.

It will be seen, therefore, that even the phraseology of the material parts of each claim is substantially like that of the corresponding parts of the other, except in that portion of the claim of the Race & Mathews patent, where the feature of the case "passing outside of main stock of hydrant, so that any change in its position can be easily ascertained, and the case driven back to its place," is specifically mentioned.

This is in the nature of a limitation to the scope of the Race & Mathews claim, and would not be found in the first claim of the

Bailey reissue, except for the general limitation, "substantially as shown," expressed at the end, and always legally implied, referring to the descriptive portion of the specification, wherein it is said that "Said casing extends upward and fits loosely about the plug or hydrant at the portion A'."

But if the Court should hold that the concluding phrase "substantially as shown," in the first claim of the Bailey reissue, or the language quoted from the body of the specification did not limit its scope in the same manner as the more specific limitation of the claim of the Race & Mathews 1869 patent; then the greater breadth thus given to the first claim of the Bailey reissue would only aggravate the defect which the Supreme Court found in the claim of the Race & Mathews 1869 patent.

Now, it appears in evidence that Jan. 28, 1873, Samuel R. C. Mathews and R. D. Wood & Co., then owning the Race & Mathews patent of Nov. 16, 1869, brought a suit in equity in the United States Circuit Court for the District of Massachusetts, against the Boston Machine Company for infringement upon that patent, by reason of its manufacture of hydrants with outside cases having end-play, constructed as represented by "Exhibit Board Model Boston Machine Company Hydrant."

Samuel R. C. Mathews, Q. 53, 54, p. 274 (*Tr. Rec.*).
Charles Carr, Q. 3, p. 339 (*Tr. Rec.*); Q. 7, p. 340 (*Tr. Rec.*); Q. 13, pp. 340, 341 (*Tr. Rec.*).
Henry B. Renwick, Q. 13–15, p. 350 (*Tr. Rec.*).
Exhibit Record Mathews *v.* Boston Mach. Co., p. 409 (*Tr. Rec.*).

The case was argued upon pleadings and proofs before JUDGE SHEPLEY in the fall of 1876; and the bill of complaint therein was dismissed, Oct. 5, 1877. An appeal was thereupon taken to the Supreme Court of the United States, and was argued during the winter of 1880–81. The Supreme Court, after holding the case under advisement for about a year, affirmed the decree of the Circuit Court, March 27, 1882.

Samuel R. C. Mathews, Q. 53, p. 274 (*Tr. Rec.*).
Exhibit Record Mathews *v.* Boston Mach. Co., pp. 425, 492 (*Tr. Rec.*).

Among the defences set up by the Boston Machine Company in that case was one alleging that the improvement claimed in the said patent of Nov. 16, 1869, was before the invention thereof by Race

& Mathews, in use in the city of New York, by the mayor, aldermen and commonalty of that city.

Exhibit Record Mathews v. Boston Mach. Co., p. 418 (*Tr. Rec.*).

And in proof of this averment there were called to testify Albert Chesebro, a carpenter, who made wooden cases for hydrants used by the water works department of the city of New York, from 1850 to 1853, or even to 1856, and James D. Keegan, foreman of repairs of the water works of the city of New York, who applied the wooden cases, so made by Albert Chesebro, to hydrants used in and by that city for the protection of the same from frost.

Exhibit Record Mathews v. Boston Mach. Co., pp. 440–448 (*Tr. Rec.*).

A sample of such wooden cases was put in evidence in that suit, and the identical one has been made an exhibit in this suit, namely, "Exhibit New York Hydrant Box."

Exhibit Record Mathews v. Boston Mach. Co., p. 526 (*Tr. Rec.*).
Samuel R. C. Mathews, Q. 55, p. 275 (*Tr. Rec.*).

Furthermore, the same witnesses, Albert Chesebro and James D. Keegan, have testified in the present suit to the same facts as in the former suit; and there is, besides, the additional testimony of George W. Birdsall, a civil and mechanical engineer, connected with the Croton Aqueduct Department of New York City, and Henry B. Renwick, the well known mechanical expert and engineer, and an old resident of the same city; both of whom knew of the use of wooden cases like Exhibit New York Hydrant Box upon hydrants in that city, as represented by "Exhibit Board Model New York Hydrant," long before the date of the alleged invention of Thomas R. Bailey, Jr., here in controversy.

Albert Chesebro, Q. 3–15, pp. 245–247 (*Tr. Rec.*).
James D. Keegan, Q. 2–13, pp. 261, 262 (*Tr. Rec.*).
George W. Birdsall, Q. 3–6, pp. 248, 249 (*Tr. Rec.*).
Henry B. Renwick, Q. 21, 22, p. 353 (*Tr. Rec.*).

The evidence is, in brief, that during the earliest use of iron hydrants in connection with the Croton Water Works, of New York City, nothing was done to protect them from the action of frost, and they were frequently broken by the heaving of the frozen earth around them.

James D. Keegan, Q. 10, p. 261 (*Tr. Rec.*).

As early as 1851, and undoubtedly earlier, although this date has been verified by book accounts of the time, Albert Chesebro, a carpenter, then doing business on Duane Street, in the city of New York, used to make and furnish to the Croton Water Department wooden cases like Exhibit New York Hydrant Box, and continued so to do for four or five years, and perhaps longer.

Albert Chesebro, Q. 4–7, p. 246 (*Tr. Rec.*).

From that time down to the present, a period of more than thirty years, such wooden cases have been continuously and extensively used upon the hydrants in the city of New York; so that their utility and practical efficiency cannot be questioned.

Albert Chesebro, Q. 8–10, p. 246 (*Tr. Rec.*).
George W. Birdsall, Q. 3, pp. 248, 249 (*Tr. Rec.*); Q. 6, p. 249 (*Tr. Rec.*).
James D. Keegan, Q. 9, p. 261 (*Tr. Rec.*).
Henry B. Renwick, Q. 21, p. 353 (*Tr. Rec.*).

They were made at the top so as to surround and fit a circular flange on the body of the hydrant, and when placed in position, they were intended to rest upon the elbow of the supply pipe from the water-main, as represented by Exhibit Board Model New York Hydrant.

Albert Chesebro, Q. 11, 12, p. 247 (*Tr. Rec.*).
George W. Birdsall, Q. 4, p. 249 (*Tr. Rec.*).
James D. Keegan, Q. 9, p. 261 (*Tr. Rec.*).
Henry B. Renwick, Q. 22, p. 353 (*Tr. Rec.*).

They were applied to these hydrants for the purpose of protecting them from frost, and they served that purpose effectually; as the frozen earth expended its upheaving force upon them, even to the extent of lifting them several inches without disturbing the hydrant proper.

Albert Chesebro, Q. 13, p. 247 (*Tr. Rec.*).
George W. Birdsall, Q. 5, p. 249 (*Tr. Rec.*); C. Q. 13–16, p. 250 (*Tr. Rec.*).
James D. Keegan, Q. 11, 12, p. 261 (*Tr. Rec.*).
Henry B. Renwick, Q. 23, pp. 353, 354 (*Tr. Rec.*).

All this evidence remains uncontroverted and unquestioned, and all that the complainants have to say in reply is in substance as follows: —

1. That upon recent examination of hydrants with wooden cases in New York City some of these cases were found to be carelessly set and some rotten.

James Flower, Q. 5, p. 372 (*Tr. Rec.*).

2. That the wooden cases so examined did not show any signs of having been driven down, — their upper ends not being battered up.

James Flower, Q. 7, p. 372 (*Tr. Rec.*).

3. That there was also nothing about them to indicate that they had been lifted by frost.

James Flower, Q. 9, p. 373 (*Tr. Rec.*).

4. That the shape of the wooden case would prevent its being raised by the frozen ground at all.

Thomas R. Bailey, 2d dep., Q. 26, pp. 379, 380 (*Tr. Rec.*).

This is irrelevant to the issue whether such wooden cases were used upon hydrants thirty years ago, in the manner and for the purpose testified by the witnesses Chesebro, Birdsall, Keegan and Renwick. Moreover, the opinion of Thomas R. Bailey, or any other of the complainants' witnesses, that a wooden case such as the Exhibit New York Hydrant Box could not be heaved by the frozen earth around it, is of little weight compared with the testimony of a foreman of repairs and of an engineer in the Croton Water Department, that according to their observation the frost did heave those wooden cases when set around the hydrants.

George W. Birdsall, C. Q. 12–16, p. 250 (*Tr. Rec.*).
James D. Keegan, Q. 12, 13, pp. 261, 262 (*Tr. Rec.*).

And even if the frost could not exert force enough to heave a wooden case of such shape, the hydrant would be protected by it none the less. The case would in that event, to use the language of the first claim of the reissue in suit, "receive the entire movement imparted by the upheaval of the surrounding earth by freezing, without derangement or disturbance of the hydrant or plug proper"; although its own resistance would be so great as to "*receive*" such movement without partaking of it; the beneficial result to the hydrant being the same whether the case slipped up upon it or remained unmoved.

Henry B. Renwick, Q. 23, pp. 353, 354 (*Tr. Rec.*).

Hence, it results that, as the facts proved in this suit in respect to the prior knowledge and use of these wooden cases upon the hydrants in the city of New York are identical with the facts in relation to the same subject proved in the former suit of *Mathews* v.

Boston Machine Co.; and, as the first claim of the Bailey reissue, No. 6,990, is identical in meaning with the claim of the Race & Mathews patent, No. 96,959; the decision of the Supreme Court upon the question of novelty of the subject-matter of the claim of that Race & Mathews patent, in view of the New York structure in the former suit, must be conclusive upon the same question of novelty of the identical subject-matter of the first claim of the Bailey reissue in this suit.

That decision is summed up as follows in the opinion of the Supreme Court, delivered by Mr. JUSTICE BRADLEY: —

"The claim of the patent of 1869, as it stands, covers any and every loose jacket having an end play to compensate for the heaving of the frost and having the upper end passing around the hydrant. It covers the old New York wooden case or housing which was in public use for many years before Race & Mathews gave their attention to the subject. We are of opinion, therefore, that this patent cannot be sustained."

Exhibit Supreme Court Decision, p. 338 (*Tr. Rec.*).

The first claim of the Bailey reissue, as we have already pointed out, is even less specific in respect to one feature of the structure, than the claim of the Race & Mathews 1869 patent. It is only by reference to the body of the specification that this feature of the upper end of the case passing outside of the hydrant, can be made to limit the scope of the claim. The phrase "substantially as shown," with which the first claim of the reissue in suit concludes, adds no further significance to its meaning. Every claim is properly construed to be substantially as described and shown, whether those words are used or not.

Upon this point the following opinion of the Supreme Court, delivered by Mr. JUSTICE CLIFFORD, is conclusive: —

"Usually the claim contains the words 'as described' or 'substantially as described,' or words of like import, which are everywhere understood as referring back to the descriptive parts of the specification. Words of such import, if not expressed in the claim, must be implied."

Mitchell v. *Tilghman*, 19 Wallace, 287, 391.

Now, although the claim of the Race & Mathews 1869 patent explicitly described that feature of the case by virtue of which it

passed outside of the hydrant so as to be exposed to view at the top; the claim did not also specify the construction of the case at the bottom, nor the precise mode of its combination with the rest of the structure; and as the specification did not insist exclusively upon the construction shown, but said that "The lower end of the case preferably shuts into a flange *h* of the main elbow connection C," the Supreme Court held that the specification did not sufficiently limit the character of the structure described, to warrant such an interpretation of the claim as would include the close joint at the bottom of the case.

The language of the opinion of the Supreme Court upon this point is as follows: —

"The claim is for 'the detached case B, so combined and arranged with the hydrant A as to have an end play or vertical motion of several inches to compensate for the heaving by frost, the upper part of same passing outside of main stock of hydrant.'

"Had this patent been confined to a hydrant jacket closed at the bottom and resting on a flange of the main elbow, perhaps it might have been sustainable. But it is not so confined. It is only said that the lower end preferably shuts into a flange of the elbow."

Exhibit Supreme Court Decision, p. 338 (*Tr. Rec.*).
Mathews v. *Machine Co.*, 105 U.S., 54, 59.

The present question is, Does the specification of the Bailey reissue No. 6,990 indicate any more clearly than the specification of the Race & Mathews 1869 patent, that the joint at the bottom of the case forms any essential part of the structure specified in the first claim thereof? and the answer must be decidedly in the negative.

The only description whatsoever of this part of the structure, to be found in the Bailey reissue, is the following: —

"It will be observed that the casing C loosely rests upon the main B, or upon a branch projecting upward from the same."

Here is an alternative construction suggested, neither one of which specifies or suggests that a closed joint is formed at the bottom of the casing.

Indeed, the declaration "that the casing C loosely rests upon the main B" indicates and describes precisely the construction of the New York City hydrants with their wooden cases, which, when placed in position, loosely rested upon the branch of the water-main.

There is not in this Bailey reissue even the equivalent of the suggestion contained in the Race & Mathews 1869 patent, that "the lower end of the case preferably shuts into a flange *h* of the main elbow connection C," which the Supreme Court deemed to be inadequate to be taken as a material feature of the structure. The Bailey reissue does not so much as mention a *flange* upon the main elbow at the bottom of the case, nor any feature of a joint formed by one part *shutting into* another, whether preferable or otherwise.

Aside from the cylinder valve and its adjuncts, little else is described in the whole specification than the capacity of the case for end-play, and the construction which admits of it. The specification states that this is "The main function of the casing C," and further on reiterates, "This is the chief function of the casing C;" adding as of little consequence, "although it likewise serves the purpose of protection to the water-pipe A."

This postscript does not make the matter any clearer; for the specification of the Race & Mathews 1869 patent had a still more explicit description of the same character where it said: "The earth is filled around this jacket, *while the hydrant-stock itself is simply inclosed*"; and yet the Supreme Court did not regard it as signifying that the case enclosed the hydrant stock entirely at the bottom, so as to prevent the claim from being anticipated by the New York hydrant structure.

We confidently submit, therefore, that the claim of the Race & Mathews 1869 patent and the first claim of the Bailey reissue here in suit are identical in scope and meaning; and that the finding of the Supreme Court of the United States that the former was too broad in view of the wooden cases on the New York hydrants, and consequently not capable of being sustained, applies with equal force to the latter, even upon the supposition that such reissue is properly taken and that its patentee was an original inventor of the thing in controversy.

We conclude this branch of defence by quoting from the testimony of Mr. Henry B. Renwick, who testified on behalf of defendants in the former suit of *Mathews* v. *Boston Machine Co.*, and whose opinion therein upon matters of fact the Supreme Court appear to have adopted as the ground of their decision.

Henry B. Renwick, Q. 26, 27, p. 355 (*Tr. Rec.*).

"*Q.* 98. In your answer to Cross-Int. 92 you stated in substance that you have no doubt that the statement in the Race & Mathews patent of 1869 that the lower end of the case preferably shuts into a flange of the main elbow connection had something to do with your conclusion as to the New York hydrant box anticipating the claim of that patent. Is there any corresponding alternative construction specified in the Bailey reissue No. 6 990, which has influenced your conclusions as to the New York hydrant box anticipating the first claim of that reissue? In this connection you may also compare the descriptive language of the claim of the Race & Mathews patent of 1869, and the first claim of the Bailey reissue No. 6,990, and point out their likeness or differences.

"*A.* In the Bailey reissue an alternative way of supporting the bottom of the frost jacket or casing is suggested. In the drawings the connection is by means of a socket on the bottom of the casing resting upon a sleeve or branch, projecting upwards from the main, but in the reissue there is this phraseology: 'It will be observed that the casing C loosely rests upon the main B, or upon a branch projecting upwards from the same.' Now, these words 'loosely resting upon the main,' describe the way in which the New York box rests upon the main, and certainly so enlarge the claim that it would not be necessary that the case should have the peculiar socket connection shown in the drawings in order to infringe the claim. The claims of the Race & Mathews patent of 1869 and of the Bailey reissue are substantially identical. In both, the casing is called a 'detached' casing; in one it is said to have an 'end-play' or vertical motion; in the other it is said to have an 'up-and-down motion'; in one claim 'sufficient to receive the entire movement imparted by the upheaval of the surrounding earth by freezing'; and in the other 'to compensate for the heaving by frost.' The Race & Mathews claim has in it the words 'so that any change in its position can be easily ascertained and the case driven back to its place without disturbing the hydrant.' This limitation is not found in the claim of the Bailey reissue, but both the description and the drawings of the reissue show identically the same construction of the upper part of the casing and hydrant as is shown in the Race & Mathews patent; and with the Bailey case, the change in its position could be ascertained and the case or frost jacket driven down without disturbing the hydrant. In my opinion the two claims are of the same scope and to the same combination."

Henry B. Renwick, dep. p. 368 (*Tr. Rec.*)

Summing up the defences against this suit, it appears: —

First, That the defendants' hydrants complained of do not embody any invention for which the original patent No. 75,344 was granted to Thomas R. Bailey, Jr., and consequently do not infringe upon any legitimate claim in the reissue No. 6,990 here in suit.

Second, That in so far as concerns the first claim of the reissue in suit, and the third claim thereof also, if the "casing C" therein specified is held to be the same structure as the "casing C" of the first claim, such reissue is not for the same invention as was the

original patent but for a wholly different invention, and is therefore invalid and void.

Third, That the reissue No. 6,990 here in suit was procured with new and enlarged claims for the purpose of covering hydrants such as had theretofore during a period of more than nine years extensively been manufactured and put into use in various cities and towns throughout the United States; and that if the subject matter of these new and enlarged claims of the reissue had been disclosed in the original patent and had been first invented by Thomas R. Bailey, Jr. (the contrary of which is proved), he was guilty of gross laches in attempting to procure the reissue, and the same is invalid and void for that reason if for no other.

Fourth, That before the alleged invention by Thomas R. Bailey, Jr., of what he has attempted to claim in and by the reissue here in suit, hydrants substantially the same in construction as those used by the defendants and for the use of which the charge of infringement is made in this suit, had been invented by Washburn Race and Samuel R. C. Mathews and had been manufactured and sold by them and their associates.

Fifth, That the first claim of the reissue here in suit is substantially the same in phraseology and identically the same in meaning with the single claim of the patent No. 96,959 granted to Race & Mathews, November 16, 1869, which was before this Court for adjudication in the case of *Mathews* v. *Machine Co.* (105 U. S. 54, 58, 59); and that the decision therein that such claim was anticipated by the structure of the New York hydrants, which are proved in this case with equal conclusiveness, applies also to the first claim of the reissue here in suit.

Respectfully submitted.

GEORGE L. ROBERTS,

Of Counsel for Appellees.

original patent but for a wholly different invention, and is therefore invalid and void.

Third, That the reissue No. 6,990 here in suit was procured with new and enlarged claims for the purpose of covering hydrants such as had theretofore during a period of more than nine years extensively been manufactured and put into use in various cities and towns throughout the United States; and that if the subject matter of these new and enlarged claims of the reissue had been disclosed in the original patent and had been first invented by Thomas R. Bailey, Jr. (the contrary of which is proved), he was guilty of gross laches in attempting to procure the reissue, and the same is invalid and void for that reason if for no other.

Fourth, That before the alleged invention by Thomas R. Bailey, Jr., of what he has attempted to claim in and by the reissue here in suit, hydrants substantially the same in construction as those used by the defendants and for the use of which the charge of infringement is made in this suit, had been invented by Washburn Race and Samuel R. C. Mathews and had been manufactured and sold by them and their associates.

Fifth, That the first claim of the reissue here in suit is substantially the same in phraseology and identically the same in meaning with the single claim of the patent No. 96,959 granted to Race & Mathews, November 16, 1869, which was before this Court for adjudication in the case of *Mathews* v. *Machine Co.* (105 U. S. 54, 58, 59); and that the decision therein that such claim was anticipated by the structure of the New York hydrants, which are proved in this case with equal conclusiveness, applies also to the first claim of the reissue here in suit.

Respectfully submitted.

GEORGE L. ROBERTS,

Of Counsel for Appellees.

27-563

Office Supreme Court U. S.
FILED.
APR 5 1888
JAMES H. McKENNEY,
CLERK

United States Supreme Court.

OCTOBER TERM, 1887.

JAMES FLOWER ET AL., *Appellants*,
vs.
THE CITY OF DETROIT ET AL., *Appellees*. } No. 203.

REPLY BRIEF.

LIST OF LARGE MODELS AND SAMPLES.

1. New York Hydrant Box, eleven staves and two iron hoops.
2. Board Model New York Hydrant, with the box in position. (See Reply Brief.)
3. Board Model Race & Mathews old style Hydrant, with flanges *s* and *t* at the top and waste-pipe at the bottom.
4. Board Model Race & Mathews new style Hydrant, without the flanges, but with the waste-pipe.
5. Board Model Bailey Hydrant, with loose casing, without flanges and without waste-pipe.
6. Board Model Boston Machine Company Hydrant, like Bailey Hydrant.
7. Race & Mathews new style Hydrant, without flanges, but with the waste-pipe.
8. The Exhibit Bailey Hydrant, like the model and like the amended drawing, the most perfect hydrant yet devised.

LIST OF SMALL MODELS.

A. Flower Brothers' Taper-joint Hydrant, showing their Manufacture from 1873 to 1876.
B. Bailey Original Model, mate to Patent Office Model.
C. Model Defendant's Hydrant—the infringement.
D. Model Flower Brothers' Bailey Hydrant, showing their Manufacture from 1876 to date.
E. Model Race & Mathews N. S. Hydrant; no flanges, but with waste-pipe.
F. Model Race & Mathews 1869 Patent 96959, reissue 10452.
G. Model Race & Mathews 1858 Patent 19206, reissue 4887.
H. Old Wooden Box Hydrants, boxes, etc.
I. Set Screw from Bailey Hydrant.
J. Clack Valve.
K. (4) Models showing State of Art.

No. 203.

Reply Brief of Hill for Appts

Filed March 23 1888.

WITHDRAWN

Supreme Court of the United States.

OCTOBER TERM, 1887.

JAMES FLOWER ET AL., *Appellants*,

vs.

THE CITY OF DETROIT ET AL., *Appellees*,

No. 203.

Appeal from the Circuit Court of the United States for the Eastern District of Michigan.

BRIEF IN REPLY FOR THE APPELLANTS.

THE MISTAKE.

The variance between the drawing and the model.

Mr. Roberts urges that the plain, positive, and unequivocal allegations of mistake of fact to be found in our bill of complaint (see pp. 10, 11, Transcript) constitute a fatal admission, namely, "the express admission that this invention (*i. e.*, the loose casing in combination with the hydrant) was not shown in the original patent.

Appellee's Brief, p. 78.

This, in view of his italics alone, flatly contradicts the record.

We will only repeat these italics, in refutation:

"*And that the defect and insufficiency therein arose from a discrepancy or difference between the drawing forming a part of 'said specification and the model aforesaid.*"

"*Which feature (i. e., the loose casing in combination, &c.) is fully shown and properly exhibited in and by the said model, but which feature was not shown in said drawing.*"

"*That while the model shows the said case as loose because of its having end play up and down on and forming a part of the hydrant, yet the said drawing shows the said case as being confined at the top as well as the bottom, so as not to be a loose case, and as not to have such end play.*"

We proved this mistake. See our brief, pp. 20–22.

We are at a loss to see why this does not bring the amendment squarely within the four corners of §4916, viz:

"Whenever any patent is inoperative or invalid, by reason of a defective or insufficient specification, * * * if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a new patent for the same invention, and in accordance with the corrected specification, to be issued to the patentee * * * for the unexpired term of the original patent; *such surrender shall take effect upon the issue of the amended patent. The specifications and claims in every such case shall be subject to revision and restriction in the same manner as original applications are. Every patent so reissued, together with the corrected specifications, shall have the same effect and operation in law, on the trial of all actions for causes thereafter arising, as if the same had been originally filed in such corrected form; but* no new matter shall be introduced into the specifications, *nor in case of a machine patent shall the model or drawings be amended, except each by the other.*"

The power of the Commissioner to allow either the drawing or the model to be amended in such a case is plain though limited. Is not either amendable? How? As plainly prescribed; in no other way, *except each by the other*, as the case may require. This statute prescribes for a surrender of the original to the Commissioner, and this surrender opens up the original record before him. It leaves it to him to determine the fact and to reissue the patent accordingly. The statute precludes all inquiry and excludes all presumptions in collateral action by prescribing the doctrine of relation; by making the reissue patent, with the corrected specifications, thenceforward conclusive evidence *as if the same had been originally filed in such corrected form.* This disposes of the fine-haired theory—the delusion that seized *Samuel R. C. Mathews*, Rufus F. Osgood, and John A. Weidersheim in 1869 (see their testimony as to the procurement of the 1869

patent No. 96959), and which is inculcated here by Mr. Roberts, namely: "*That the presumption both of law and of fact is that any discrepancy between the Patent Office model and the drawing of the original patent was an accidental variation in the model and not an error in the drawing,*" etc.

Appellees' Brief, page 43.

This relieves the court of any further inquiry on making the comparison between the original, No. 75344, and reissue, No. 6990, because it plainly appears from this comparison that the Commissioner has corrected a mistake of fact entirely and exclusively within his jurisdiction. Like the verdict of a jury, or a decree finding the fact by the chancellor, the reissued patent stands as the bar to any and every attempt to go behind it. Because there is a variance between the original and reissue owing to a corrected drawing, etc., it does not follow that there is a want of identity of invention between the new and the old.

If Doe should deed to Roe the N. W. $\frac{1}{4}$ of the S. E. $\frac{1}{4}$ of a certain section of land, and Roe should go into possession of the N. W. $\frac{1}{4}$ of the N. E. $\frac{1}{4}$, and remain there for twenty years, and then discover that there was a mistake in his deed, the intention of Doe having been to transfer the forty acres occupied by Roe so long, would a court of equity hesitate to correct the mistake, even as against Doe's heirs or assigns? This possession would protect Roe's equities, go far to prove the mistake, and the right of action would date from the discovery of the mistake; yet if Roe had read his deed it would have been plain to him that it did not convey the land which he bought.

Could the court, after the correction of the mistake by the chancellor, and in an action by Roe against the trespasser, by comparing the new deed with the old, pronounce the new one void for a fatal variance between the two? But they plainly do not cover the same land. Why not? Because of the mistake.

So here the *model of the invention* and the hydrants made by the inventor take the place of the possession. The mistake establishes the jurisdiction which supports the action of the Commissioner and relieves the court of all further investigation.

Philadelphia, etc., Railroad Co. *vs.* Stimpson, 14 Peters, 448.

The court below incorrectly stated the rule, and asserted that "the jurisdiction of the court is limited to a comparison between the original and reissued patents, and to the ascertainment whether there is a fatal variance between the two." Transcript, page 602, 652.

The true rule is this: The reissued patent must by the express words of the statute be for the same invention, and consequently where it appears on a comparison of the two instruments *as matter of law*, that the reissued patent is not for the same invention as that embraced and secured in the original patent, the reissue is void on its face, as it plainly appears that the Commissioner, in granting the amendment, exceeded his jurisdiction.

Seymour v. Osborne, 3 Fish., 555; S. C., 11 Wall., 516; Ball v. Langles, 102 U. S., 130.

Palmer & Whipple Co. v. Yale Lock Co., 123 U. S., 87.

But where the specification has been amended, as in this case, simply conforming the drawing to the model, then this rule is inapplicable. A comparison shows that an error *in fact* has been corrected—a case peculiarly within the Commissioner's statutory jurisdiction existed. To determine whether the Commissioner has erred in the exercise of the jurisdiction thus plainly accorded to him by statute then involves the investigation of facts, which cannot be permitted in an action for infringement. The court will not, because there is a variance between the original issue and the amendment in such a case, demolish the patent, and then require

the patentee to re-establish his patent *de novo* by competent proof *aliunde*, whenever he sues a *tort-feasor*.

By thus limiting the rule of comparison which it erroneously applied, denying the *prima facie* evidence afforded by the reissued patent, the court below deprived the plaintiffs of their *prima facie case*, and threw the *burden of proof* upon them to establish nearly all the facts, even the model which the letters patent No. 6990 were made to evidence, necessary to support their bill of complaint. Was this right?

It is prescribed that—

"Every patent so reissued, together with the corrected specification, shall have the same effect and operation in law on the trial of all actions for causes thereafter arising as if the same had been originally filed in such corrected form." § 4916, *supra*.

This is a rule of evidence. This utterly precluded the court from considering the original drawing for any purpose in the case.

The destruction of the model threw the burden of proof upon the defendants to show its exact construction, if they could in this suit have asked the court to review the action of the Commissioner as to the result. The court makes the loss of the model the plaintiff's misfortune. But we reproduced the model and we court investigation.

If we mistake not, "*all matters of fact* connected with the surrender and reissue of a patent are conclusively settled by the decision of the Commissioner granting the reissued patent, while matters of construction, however, arising upon the face of the instrument, are still open to examination."

If the Commissioner erred in allowing the amendment, in permitting the drawing to be amended, as alleged and proved, Race & Mathews had their remedy.

In Rubber Co. *v.* Goodyear, 9 Wall., 788, the court asked: "Can we go behind the action of the Commissioner in extending the patent and inquire into the frauds by which it is alleged that extension was procured?" After reviewing the legislation of Congress upon the subject, the court

further said: "This review furnishes a strong implication that it was the intention of Congress not to allow a patent to be abrogated in any collateral proceeding, except in the particular instance mentioned, but to leave the remedy in all other cases to be regulated by the principles of general jurisprudence. To those principles must we look for the solution of the question before us. The subject was examined by Chancellor Kent, with his accustomed fullness of research and ability, in Jackson *v.* Lawton, 10 Johns., 23. He there said: 'Unless letters patent are absolutely void on the face of them, or the issuing of them was without authority, or was prohibited by statute, they can only be avoided in a regular course of pleading, in which fraud, irregularity, or mistake is regularly put in issue. The principle has been frequently admitted that the fraud must appear on the face of the patent to render it void in a court of law, and that when the fraud or other defect arises on circumstances, *dehors* the grant, the grant is voidable only by suit. (1 Henning and Munford, 19, 187; 1 Munford, 134.) The regular tribunal is chancery, founded on a proceeding by *scire facias*, or by bill or information.' The patent in that case was for land, but as regards the point here under consideration, there is no distinction between such a patent and one for invention and discovery."

The case of Miller *v.* Brass Company, *supra*, with the subsequent cases founded upon it as we read them, cannot be considered as affecting this salutary doctrine, for in every one of them the courts have proceeded to construe the reissue in question, and been enabled to pronounce it void on its face. This brings us back to the record.

In answer to the plaintiffs' circular of March 31, 1876, informing him of the Bailey reissue, Mathews says:

"We intend to take proceedings to have the patent set aside as void and fraudulently obtained." Transcript, page 58.

This was his remedy. He had no other. He had dodged interference with Bailey at the Patent Office, and gotten a

patent as well as a reissue concerning this very invention. The provisions of § 4918, were open to him. When one of his customers is sued as a *tort feasor* and infringer, can the issues be made in defense of the infringement so as to review the action of the Commissioner *as to matters of fact?* Mowry *v.* Whitney, 14 Wall., 439.

The same obliquity of genius which seems to have actuated Mathews to clothe himself with Bailey's invention and seek to enforce too broad and broadened claims against Bailey Hydrants in the Boston Machine Company case pursues him and his learned counsel into this case. He testifies here as he did there, and his learned counsel is here now contending as he did there that "The whole invention in controversy consists merely in uncovering the top of the sliding case of the Race & Mathews old-style 1860 hydrant." Appellee's brief, page 51.

If uncovering the top of the 1860 hydrant and concealing its bottom enabled him to claim the New York wooden box in which there was no invention, how can he use that box or the manufacture of 1860 (which we have shown plainly discloses the waste pipe) to defeat the combination of a hydrant (= A, B, D, and H) with a detached and surrounding (*i. e.*, inclosed on all sides) casing which constitutes the Bailey Hydrant?

After surrendering No. 19206, and the reissue thereof in 1872 as No. 4887, how can they use No. 19206 as even evidence of invention or anticipation? § 4916.

In view of the invalidation of No. 4887 and No. 96959 by this court in 1882, how do they expect to derive aid and comfort from them in this suit?

Turn to the drawing between pages 94 and 95 of Mr. Roberts' brief and compare it with the Race & Mathews new style hydrant, pages 28 and 29 of our brief. We propound a few suggestive inquiries. Why the perspective view of the hydrant instead of the sectional elevation? Why the broken line and the concealment of the internal construction and

On the 18th day of December, 1882, Mathews made an affidavit as follows, viz:

STATE OF PENNSYLVANIA,
County of Philadelphia, ss:

SAMUEL R. C. MATHEWS, being duly sworn according to law, deposes and says that he is one of the joint inventors in the above-entitled patent and an applicant for the reissue for the same, and further he says that the reissue now sought is necessary for the reason that the said original patent (96959) claimed as the invention of deponent and Washburn Race is a hydrant provided with a frost jacket adapted and arranged so as to project above the surface of the ground and to have a vertical end play, said claim being broader than applicant's invention and anticipated by hydrants in use at the time thereof; and, further, he says that the said invalidity in said claim arose without any fraudulent or deceptive intent on the part of said patentees, but from their inadvertence and mistake, they having at all times prior to the interpretation of said claim by the Supreme Court of the United States considered said claim to be so qualified by the accompanying specification as to have the meaning and scope of the claims now prayed for in this application for a reissue.

SAMUEL R. C. MATHEWS.

Affirmed to and subscribed before me this 18th day of December, 1882.

[L. S.] ROBERT J. OWEN,
Notary Public.

Transcript, pp. 624–625.

The claims referred to are to be found on pp. 647 and 648 of the record.

"The said case B forming a comparative close sliding-joint with the hydrant at both top and bottom" is evidently new matter put into one claim, and "the said case B closely

surrounding the hydrant at the bottom and supported by the main elbow" is new matter put into another claim to meet the suggestion of this court. Transcript, p. 338.

Having made this affidavit and filed it, does it lie in the mouth of his counsel to contradict it by insisting that the invention was simply uncovering the casing upon the Race & Mathews old style (1860) hydrant?

Finally, we urge the action of the appellants and their patentee, Thomas R. Bailey, in the procurement of reissue No. 6990, every step taken in the clear light of day and under the advice of counsel—in contrast with the action of Samuel R. C. Mathews and his associates, in the procurement of the patent of 1869, No. 96959; or of reissue No. 4887 of the patent of 1858; or of the reissue No. 10452 of the patent of 1869, each disclosing methods which have here received the severest condemnation.

Conduct of Bailey and of James Flower & Bros., contrasted with that of Mathews, and of R. D. Wood & Co.

This slight variance between the original Patent Office drawing and the model, caused the reissue No. 6990.

The variance is discernable on comparison of the original and amended drawings.

See pp. 50, 55 Transcript.
Appellant's brief, pp. 6, 7.
Appellee's brief, pp. 2, 3.

In the amended drawing it will be observed that an ornamental bead, having no function to perform in the structure, and no mark, no mention in No. 75344, is lettered *a* in the reissue No. 6,990.

Mathews, pp. 281, lines 36–39, Transcript.
Pendry, pp. 406, 407, Transcript.
Renwick, pp. 361, 362, 363, 365, Transcript.

There is no essential difference in the two, except a space is left between the bead and case in the reissue, as shown in the model—"Bailey Original Model."

Shipley, Transcript, p. 154.

In the fall of 1875, Bailey, the patentee, submitted his patent No. 75344 to appellants. Pendry, who was their

mechanical engineer and draughtsman, from 1872 to about 1877, testified, viz:

12 Q. Please examine "Exhibit Bailey Original Patent" and state when, where, and under what circumstances you first saw those letters patent and examined that drawing?

A. When I was with James Flower & Bro. in the fall of 1875, I couldn't tell exact date, my attention was first called to the peculiar form of the valve and also that the jacketing around the hydrant was not shown as I supposed it should be; that is, no space was allowed for the raising of the jacket between its top line and a bead around base of hydrant, thereby nullifying the evident intention of the inventor."

Transcript p. 143.

He then, for appellants, wrote to Bailey inclosing a tracing of the top of the hydrant.

(Transcript, pp. 140, 65.)

Also a second letter. (*Id.*)

And the matter was submitted to eminent counsel, M. D. LEGGETT, of Cleveland, Ohio, formerly a commissioner of patents, who gave them his opinion by letter, after learning that "the model showed abundant room between the top of the jacket and the bead on the stock, to admit of the motion caused by the frost," that a reissue might be had to correct the discrepancy between the model and drawing.

(Transcript, p. 58.)

We put this letter from Mr. Leggett in evidence, not to show the construction of the model at all, but to evidence the good faith of appellants and their patentee, in making the application for the reissue which followed. The only evidence required of the construction of the model is the amended drawing, and that is conclusive, if these facts constitute a case for the reissue. § 4916. The model was then intact in the custody of the commissioner of patents; it was *his* duty to examine the same, compare it with the drawings, and it was *his* duty to grant or withhold the reissue. That is what he is for. He granted it; by his sanction, both at common law (6 How., 11 How., *supra*) and under the rules of the Patent Office, and the statute, § 4916 the drawing was amended conforming the drawing to the model. As pre-

scribed and limited in § 4916, the drawing was amended in no other way *except by the model.*

This harmonized the drawing with the written description, showing the *loose casing around the hydrant tube,* as specified.

Relying upon this action of the patent office, appellants purchased and paid $1,000 for the patent, in addition to the expenses of obtaining the reissue and employing counsel.

James Flower, Transcript, pp. 120, 121.
Thomas R. Bailey, Transcript, pp. 99, 100.

Then after receiving the assignment of the patent the appellants caused a notice to be prepared, viz.:

"*To whom it may concern:* Please take notice that we are the owners of the patent granted to Thomas R. Bailey, dated March 10, 1868, for improvement in hydrants and reissued to the said Thomas R. Bailey on the fourteenth day of March, A. D. 1876. We are informed that you are making, using or vending the hydrants covered by the said patent, and we hereby notify you that we shall hold you responsible for the said infringement of our rights to said hydrant, as secured to us by the said patent.

JAMES FLOWER & BROS.

Detroit, March 31, 1876."

and sent it broadcast over the land.

Transcript pp. 129, 132.

R. D. Wood & Co. were promptly notified, and answered this circular letter by a circular to their customers dated April 17, 1876, charging fraud in the procurement of this reissue.

See p. 35, Appellants' brief.

Thus they threw themselves into the gap in case of litigation; they are here by Mr. Roberts, their learned counsel; they asked us to wait until the Boston Machine Company litigation was ended, and then procured the reissue No. 10452 without interference to cover the Bailey Hydrant. Could action more honorable, straightforward and business-like have been taken by the appellants? Did they sneak reissue No. 6990 through the Patent Office? Did they seek to enlarge and broaden the claims? Did they seek to cover anything else than the actual invention of Bailey as specified in the patent, shown by his model and his manufacture? Did they do more than to have duly corrected a

plain, palpable mistake in the patent, and make it show clearly and exactly what the patentee (?) Mathews saw on first beholding the original patent No. 75344, viz.:

"The general construction of the outside casing, the cylindrical part of the body of the hydrant, on which the case slides, and the bead for limiting (no confining) the motion of the case."

123 U. S. p. 87, *supra*.

How can the learned counsel for R. D. Wood & Co. and their vendees, the appellees here, square the representations made to procure reissue No. 10452 and the affidavit made by Mathews, (p. 10 *supra*) after asking us to wait and after the decision of this court with the rules of fair dealing and common honesty? We have presented what we believe to be an honest case for honest men. We now submit the same in full confidence of the justice of our cause for their vindication.

Respectfully,

EDWARD J. HILL,

Solicitor for Appellants.